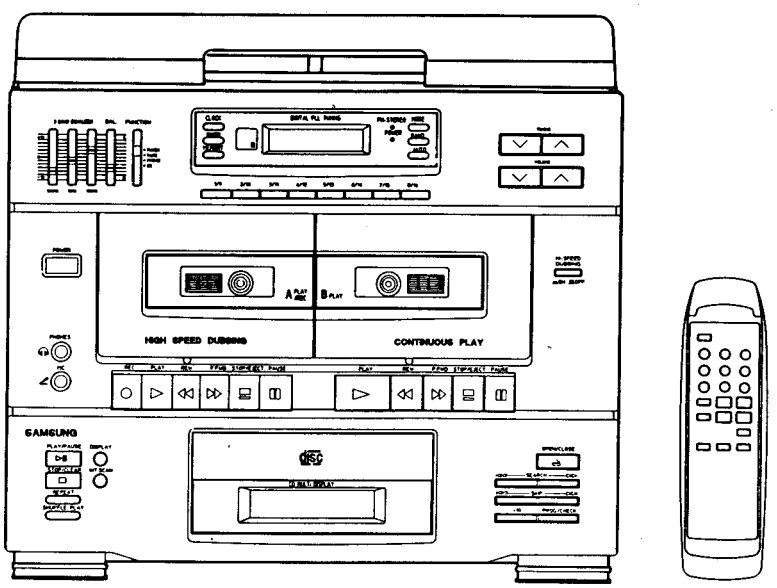
SAMSUNG
Electronics

SERVICE MANUAL
MODEL: SCM-6500

MUSIC CENTER WITH A COMPACT DISC PLAYER



SPECIFICATION

GENERAL SECTION

Power Consumption	:	30W
Dimension	:	350(W) x 362(H) x 291(D)mm
Weight (NET)	:	5.0 Kg
Power source	:	See the label rating

RADIO SECTION

LW BAND

Frequency Range	:	146KHz ~ 290KHz
Usable Sensitivity	:	1000 μV
Signal to Noise Ratio	:	35 dB

MW BAND

Frequency Range	:	522KHz ~ 1611KHz
Usable Sensitivity	:	350 μV
Signal to Noise Ratio	:	35 dB

SW BAND

Frequency Range	:	5.8MHz ~ 18MHz
Usable Sensitivity	:	100 μV
Signal to Noise Ratio	:	32 dB

FM BAND

Frequency Range	:	87.5MHz ~ 108MHz
Usable Sensitivity	:	6 μV
Signal to Noise Ratio	:	50 dB
Total Harmonic Distortion	:	1.5%
Separation	:	25 dB

TAPE SECTION(RECORD/PLAYBACK)

Frequency Range	:	125Hz ~ 8KHz
Signal to Noise Ratio	:	45 dB
Separation	:	35 dB
Total Harmonic Distortion	:	2%
Erasing Effect	:	60 dB
Wow & Flutter	:	0.3%

COMPACT DISC PLAYER SECTION

Signal to Noise Ratio	:	70 dB
Total Harmonic Distortion	:	0.08% (1KHz)
Channel Separation	:	50 dB
D/A Conversion	:	16 bits

PHONO SECTION

SPEED	:	331/2 r.p.m, 45 r.p.m
CARTRIDGE	:	CERAMIC type

* *Design and specifications are subject to change upon improvement without prior notice.*
* *Frequency range in radio section can be a little different from the above in accordance with frequency step or region.*

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■ SAFETY PRECAUTION

1. CLASS 1 LASER PRODUCT

This compact disc player is classified as a CLASS 1 laser product.

2. LASER WARNING LABEL

The label shown below may be affixed or not according to country.

(UL)

This Product Compiles with DHHS Rules 21CFR, Sub chapter J.At date of Manufacture.

(CSA)

CERTIFIED ONLY TO CANADIAN ELECTRICAL CODE.

CERTIFIE EN VERTU DU CODE CANADIAN DE LELETRICITE SEULEMENT

(EU)

CLASS 1
LASER PRODUCT

Location : Enclosure back.

(SCAN)

ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSAETTELSE FOR STRÅLING.

(EU)

UL	:	Manufactured for U.S.A. Market.
CSA	:	Manufactured for Canadian Market.
EU	:	Manufactured for European Market
SCAN	:	Manufactured for Scandinavian Market.

Location : on the disc clamper or inner side of CD door or nearby CD chassis.

3. LASER BEAM WARNING

ADVERSEL — USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLING.

VARNING — OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRR ÄR URKOPPLAD. STRALEN ÄR FARLIG.

VARITUS — LAITE SISÄLTÄÄ LASERDIODIN, JOKA LÄHETTÄÄ NÄKYMÄTÖNTA SILMILLE VAARALLISTA LASERSATEILYÄ.

CAUTION — INVISIBLE LASER RADIATION WHEN CD DOOR OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.

4. LASER DIODE SPECIFICATION (OPTICAL PICK-UP)

- o Material: AlGaAs
- o Wavelength: 760-800 nm
- o Emission duration: Continuous
- o Laser Output: 0.2mW
  - * This output is the value measured at distance 1.6mm from the objective lens surface on the optical pick-up block.
- o Classification: CLASS 1

5. WARNING FOR SERVICING

WARNING: When servicing, do not approach the LASER exit with the eye too closely. In case it is necessary to confirm LASER beam emission, be sure to observe from a distance of more than 30cm from the surface of the objective lens on the optical pick-up block.

VARNING: När underhållningsarbeten utförs, närma dig försiktigt och se inte på laserutstrålningen på för näre häll. Ifall det är nödvändigt att betrygga laserstrålens utströmning. Var säker att kontrollera detta från ett avstånd av mer än 30cm (11.81 inch.) från den objektiva linsens yta på den optiska utsåndningspunkten.

ADVARSEL: Når repareringsarbejdet udfoeres, naerm dig forsigtigt og se ikke på laserudstrålingen på for naer hånd. I tilfaeldet at det er noedvaendigt at bestemme laserstrålens udstråling. Vaer sikker på kontrollere dette fra en afstand af mere end 30cm (11.81 inch.) fra den objektive linses overflade på den optiske udsendningspunkt.

VAROITUS: Silmiä on varottava viemästä liian läbeiie Laser-poistokanavaa huoiion aikana. Jos on välttämätöntä varmistaa Laser-Säteen päästö, pysyttels sitä tarkasteltaessa vähintään 30cm etäiyydellä optisen lukon objecktiivilinssin pinnasta.

■ SERVICING NOTE

1. Prevent shock hazard by unplugging power supply cord before opening cabinet.
2. Avoid repairing under direct sunshine and heat which may cause cabinet, transistor and IC to be transformed or misoperate.
3. Use a soft cotton swab moistened with warm water or neutral cleaner when parts of unit need to be cleaned.
4. When replacing parts with safety features built in, be sure to use specified parts with same specs only.
5. Avoid repairing the set near TV or any other magnetic forces.
6. Disconnect plug from wall socket during electric storm to reduce the risk of damage.
7. Be careful of electrostatic source when using control IC.
8. Be sure not to separate the pick-up from the unit.

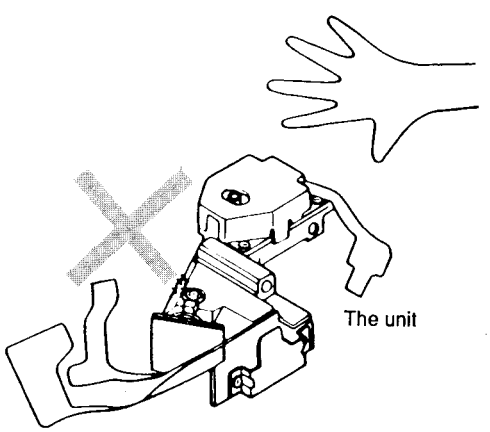
HANDLING THE OPTICAL PICK-UP

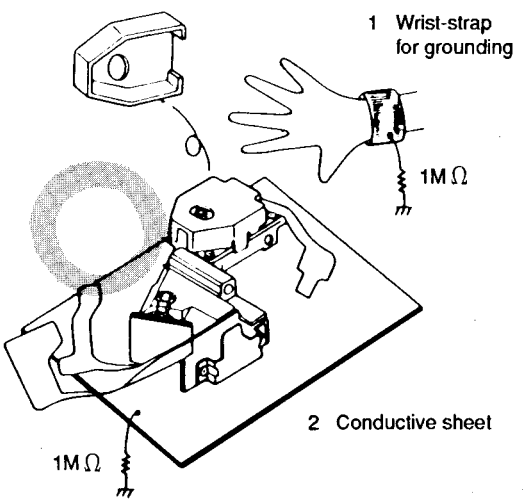
The laser diode in the optical pick up may suffer electrostatic breakdown because of potential static electricity from clothing and your body.

The following method is recommended.

1. Place a conductive sheet on the work bench (The black sheet used as wrapping for repair parts).
2. Place the set on the conductive sheet so that the chassis is grounded to the sheet.
3. Place your hands on the conductive sheet (This gives them the same ground as the sheet).
4. Remove the optical pick up block.
5. Perform work on top of the conductive sheet.
   Be careful not to let your clothes or any other static sources to touch the unit.

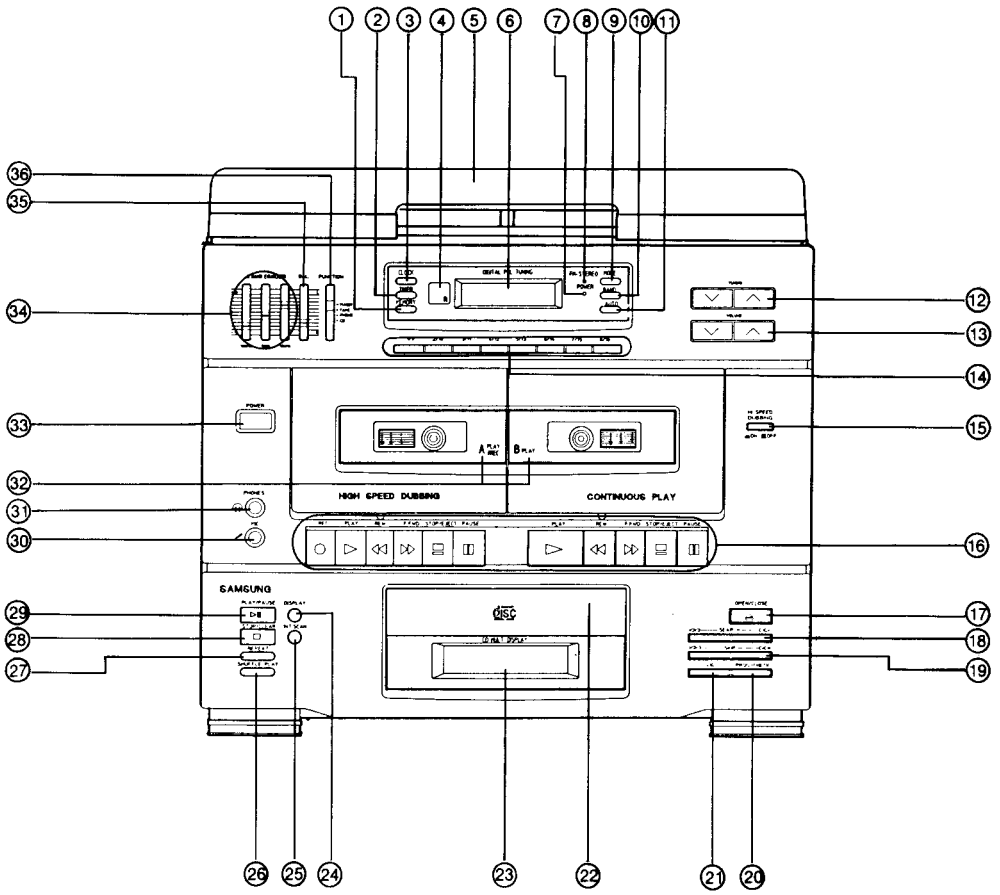
   * Be sure to put on a wrist strap grounded to the sheet.
   * Be sure to lay a conductive sheet made of copper etc. which is grounded to the table.





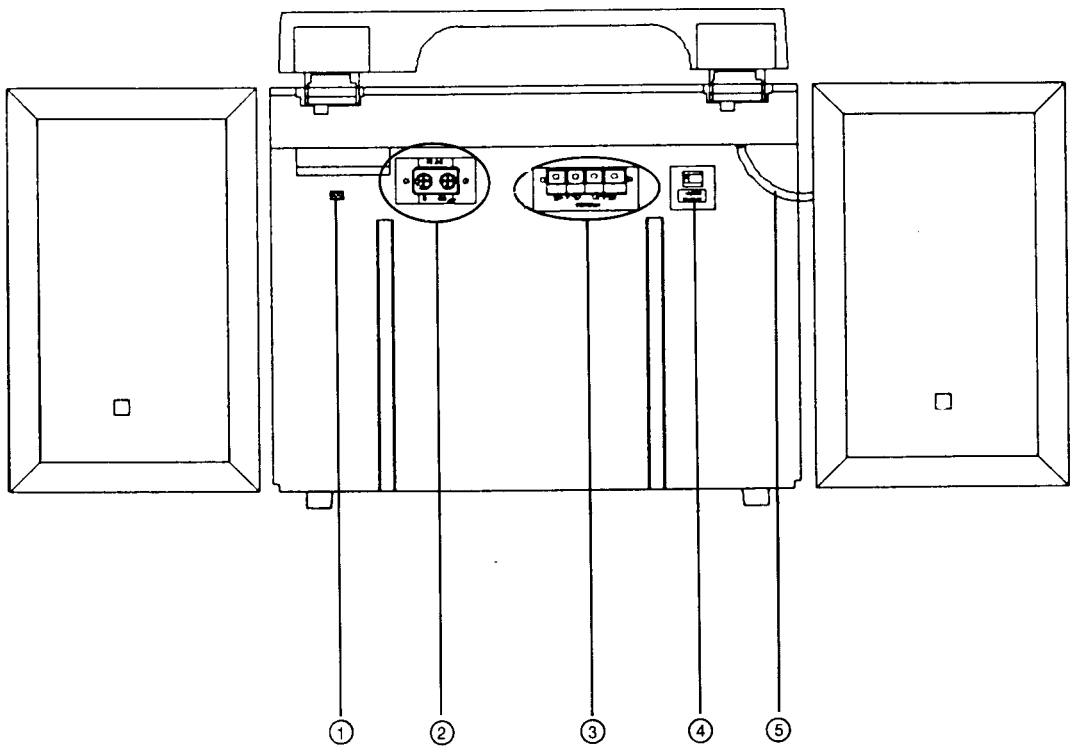
■ LOCATION OF CONTROLS

1. FRONT



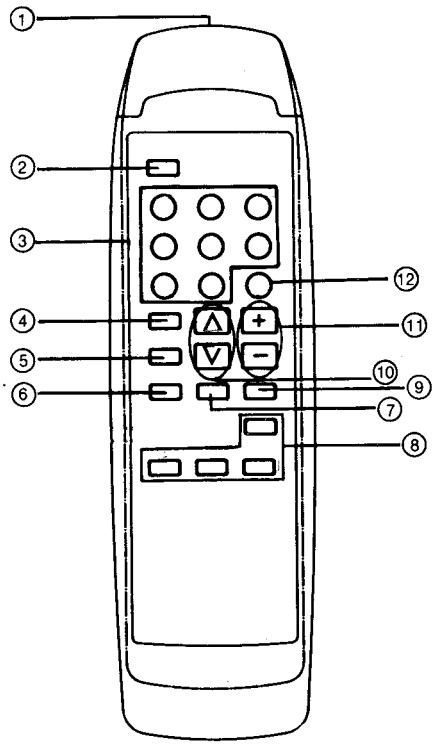
1. MEMORY BUTTON
2. TIMER BUTTON
3. CLOCK BUTTON
4. REMOTE SENSOR
5. DUST COVER
6. TIMER/TUNER DISPLAY
7. POWER INDICATOR
8. FM STEREO INDICATOR
9. MODE BUTTON
10. BAND BUTTON
11. AUTO BUTTON (AUTO SCAN)
12. TUNING UP/DOWN BUTTON
13. VOLUME UP/DOWN BUTTON
14. PRESET STATION BUTTON
15. HIGH-SPEED DUBBING SWITCH
16. A/B DECK BUTTON
    - ● RECORD BUTTON
    - ► PLAY BUTTON
    - ◄◄ REWIND BUTTON
    - ►► FAST FORWARD BUTTON
    - ■ STOP/EJECT BUTTON
    - ▮▮ PAUSE BUTTON
17. OPEN/CLOSE BUTTON
18. SEARCH BUTTON
19. SKIP BUTTON
20. PROGRAM/CHECK BUTTON
21. +10 BUTTON
22. CD DOOR
23. CD DISPLAY
24. DISPLAY BUTTON
25. INTRO SCAN BUTTON
26. SHUFFLE PLAY BUTTON
27. REPEAT BUTTON
28. STOP/CLEAR BUTTON
29. PLAY/PAUSE BUTTON
30. MIC JACK
31. PHONE JACK
32. A/B DECK DOOR
33. POWER BUTTON
34. 3 BAND EQUALIZER
35. BALANCE
36. FUNCTION SELECTOR SWITCH

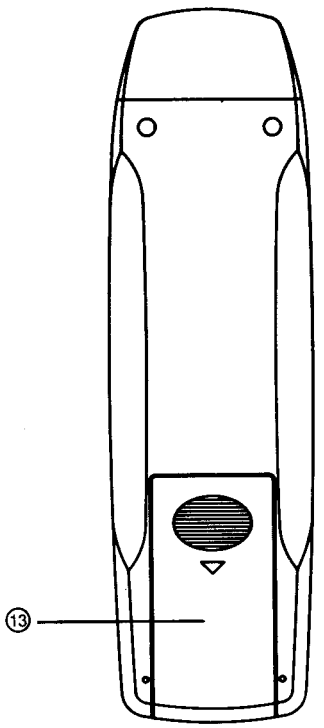
2. REAR



1. AM ANTENNA JACK
2. FM ANTENNA TERMINAL
3. SPEAKER TERMINAL
4. VOLTAGE SELECTOR (OPTIONAL)
5. POWER CORD

3. REMOTE CONTROL



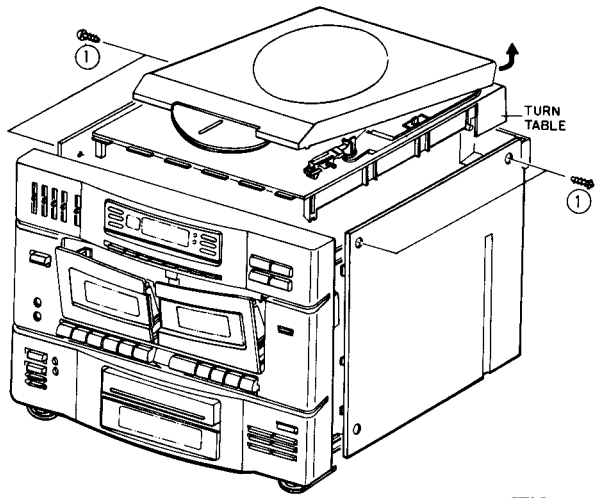


1. INFRARED TRANSMITTER WINDOW
2. POWER ON/OFF BUTTON
3. PRESET STATION BUTTONS
4. MEMORY BUTTON
5. AUTO TUNING BUTTON
6. BAND BUTTON
7. P/S (PRESET SCAN) BUTTON
   Press to automatically scan each of the programmed station.
8. CD CONTROL BUTTON
   * PLAY/PAUSE BUTTON
   Press to play and press again for pause.
   * SKIP FUNCTION
   Pressing the SKIP (⏮, ⏭) buttons will jump to any track on the disc.
   * STOP BUTTON
   Press to stop playing.
9. SLEEP BUTTON
10. TUNING UP/DOWN BUTTON
11. VOLUME UP/DOWN BUTTONS
12. CLOCK BUTTON
13. BATTERY COVER

■ DISASSEMBLY INSTRUCTION

1. TURN TABLE [FIG. 1]

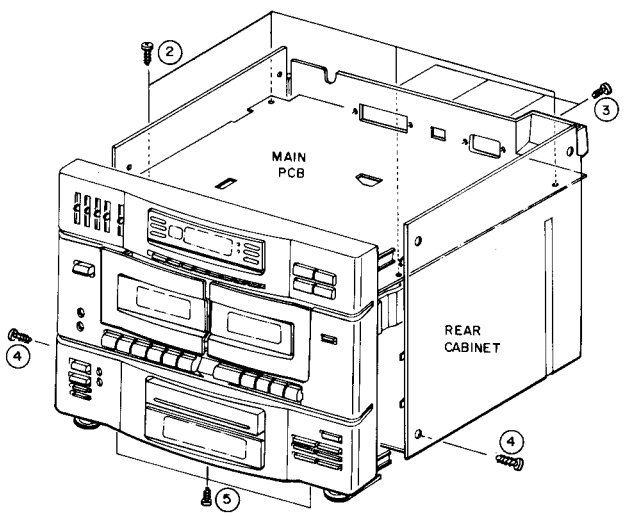
1) Release 4 screws (①).
2) Remove TURN TABLE assembly. (arrow direction)



[FIG. 1]

2. REAR CABINET & MAIN PCB [FIG. 2]

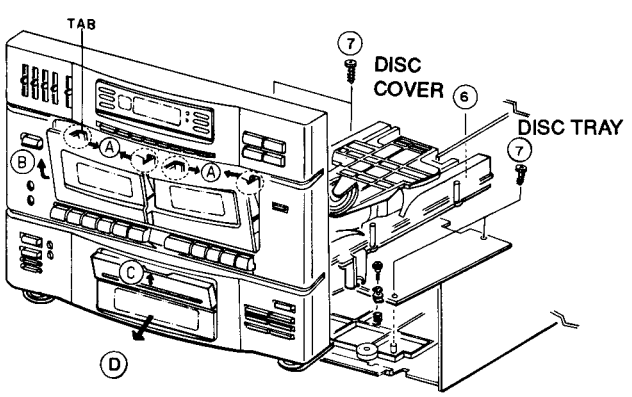
1) Release 4 screws (② , ③) respectively.
2) Release 2 screws (④).
3) Release 3 screws (⑤).
4) Remove REAR CABINET.
5) Remove MAIN PCB.



[FIG. 2]

3. CASSETTE DECK & CD DECK ASSEMBLY. [FIG. 3]

1) Open the cassette door.
2) Press TAB (direction A) and remove CASSETTE DOOR (direction B).
3) Release 6 screws on the CASSETTE DECK assembly.
4) Remove CASSETTE DECK assembly.
5) Open the CD drawer and remove the drawer guide in the direction C and then close the drawer.
   * If the drawer won't open, turn the gear at the bottom of the tray towards the front of the unit.
   * If you want to remove tray only, first open the drawer and remove the screw (⑥) then you can separate the tray from the drawer.
6) Release 4 screws (⑦).
7) Remove CD DECK assembly.



[FIG. 3]

■ BASIC CIRCUIT OPERATION

1. TUNER

1) FM band
When on FM mode, low voltage at pin 8 of MICOM IC (UIC1) turns FQ1 which operates the F.E.P (Front End Pack), on, and turns IQ3 which converts IIC1 to FM mode, off.

2) AM (MW) BAND
In AM (MW) band, high voltage at pin8 of UIC1 turns the FQ1 off and turn IQ3 which converts IIC1 to AM mode, on.

3) LW BAND (OPTIONAL)
When the LW band is selected, high voltage at pin 10 of UIC1 turns OQ1 on and turns OQ2, OQ3, OQ4, and FQ2 off, which activates the RF and AM oscillator on LW mode.

2. TAPE

1) PLAY
When PLAY button of deck A is pressed, leaf switch is on which drives the motor through the LD15.
Deck A is operational when the pin 19 of JIC1 (TA 8189) is at 0V.
When the PLAY button of deck B is pressed, the Leaf switch of deck B is on, which drives the motor through the LD14.
Deck B is operational when 11 ~ 12 voltage is applied to pin 19 of JIC1 (TA8189).
If you press both PLAY button of deck A and B simultaneously, deck B operates, first.

2) RECORD
If RECORD button of deck A is pressed, voltage is supplied to tape oscillation coil (LL1), which generates the bais supply current (85KHz) and the current is supplied through JC17L and JC17R to R/P head. At this time the current is combined with the current of the Record Amplifier Output incorporated in the JIC1 (TA8189 pin 9, 16) then supplied to the R/P head which records signal. At this moment, PLAY equalizer of deck A, B is set to deck B (pin 1, 24 of JIC1).

3) MOTOR SPEED
In normal speed, the speed is determined by the value which LR13 and LR14 is combined with LSR1.
Therefore, the motor speed is in proportion to the resistor value.
High speed dubbing operates only when function switch is on the TAPE mode.
When SW2 is on, B+ voltage which will turn LQ6 off is supplied to base of LQ4. Then the motor rotates at high speed.
High rotational speed is determined by the value of LSR1.

3. PHONO

If function switch (SW1) is on PHONO mode, RQ4 is turned on and B^+ voltage is supplied to function IC (BIC1, BIC2). PHONO signal is passed through BIC1, BIC2.

4. CDP

1) KS5990/KS59910 (Digital Signal Processor) : UIC51

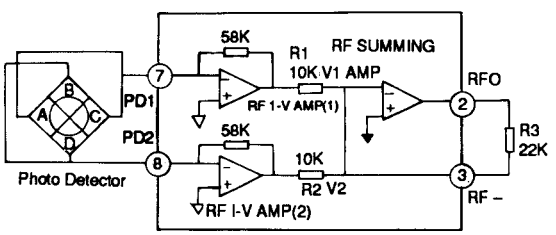
* I/O : INPUT/OUTPUT

Pin No.	Symbol	I/O	Description
1	SMEF	O	Pin 1 output is switched constant when output filter of the spindle motor is energized.
2	SMON	O	ON/OFF control for spindle motor.
3	SMPD	O	Spindle motor drive. Provides rough control during CLV-S mode and phase control during CLV-P mode.
4	SMSD	O	Spindle motor drive. Controls speed during CLV-P mode.
5	EFMZ	I	EFM signal from RF amplifier.
6	EFMO	O	Controls slice level of the EFM signal.
7	LOCK	O	The output of pin 7 reflects the status of the GFS signal which is sampled at PBFR/16. When the GFS signals is "H", but, when the signal has remained "L" for at least 8 samples, the output of pin 7 is "L".
8	VCOO	O	VCO output. The frequency is f = 8.6436MHz, when locked by the DBFR signal.
9	VCOI	I	VCO input.
10	TEST	I	. (0V).
11	PHAS	O	The output of Pin11 provides phase comparison of EFM signal and VCO/2.
12	Vss	—	GND (0V).
13	MCK	I	Pin 13 provides serial transmission clock from the CPU. Data is latched on the leading edge of the clock.
14	MLT	I	Pin 14 provides latch input from the CPU. 8-bit shift register data (serial data received from the CPU) is latched in each of the registers.
15	MDAT	I	Serial data from the CPU.
16	XRST	I	System reset ("L").
17	TRCK	I	Tracking pulse input.
18	ISTAT	O	Output reflecting internal condition as designated by address.
19	MUTE	I	Muting input. MUTE is "L" when ATTM of internal register A is "L" (normal condition). MUTE is "H" when meting condition is set.
20	SQOK	O	Output the results CRC check of subcode Q.
21	SBCK	I	Clock input for subcode serial output.
22	SDAT	O	Serial output of subcode.
23	SQDT	O	Output of subcode Q.
24	S0S1	O	Output of subcode sync S0 + S1.
25	SQCK	I/O	Clock for reading subcode Q.
26	SQEN	I	Input for selecting SQCK (L; SQCK is output, H; SQCK is input)

Pin No.	Symbol	I/O	Description
27	SRAM	I	SRAM is "H" in Normal, SRAM is "L" when system is testing.
28	LKFS	O	Display output for frame sync lock status.
29	DB8	I/O	Data pin for external RAM. DATA8 (MSB) in test mode. Hi-Z in normal
30	DB7	I/O	Data pin for external RAM. DATA7 in test mode. Hi-Z in normal
31	DB6	I/O	Data pin for external RAM. DATA6 in test mode. Hi-Z in normal
32	DB5	I/O	Data pin for external RAM. DATA5 in test mode. Hi-Z in normal
33	V_{DD}	—	Power supply (+ 5V).
34	DB4	I/O	Data pin for external RAM. DATA4 in test mode. Hi-Z in normal
35	DB3	I/O	Data pin for external RAM. DATA3 in test mode. Hi-Z in normal
36	DB2	I/O	Data pin for external RAM. DATA2 in test mode. Hi-Z in normal
37	DB1	I/O	Data pin for external RAM. DATA1 (LSB) in test mode. Hi-Z in normal
38	AD01	O	(LSB) In normal mode (TEST = 'L', SRAM = 'H'), these pins are High impedance (Hi-Z) In test mode (TEST = 'H', SRAM = 'L'), these pins are Output address of external RAM
39	AD02	O	
40	AD03	O	
41	AD04	O	
42	AD05	O	
43	AD06	O	
44	AD07	O	
45	AD08	O	
46	AD09	O	
47	AD10	O	
48	AD11	O	(MSB)
49	WE	I/O	In normal mode, this is WE output. In test mode, write enable input.
50	CE	I/O	In normal mode, this is CE output. In test mode, chip enable input.
51	4MCK	O	Divider output for crystal. f = 4.2336MHz
52	Vss	—	GND (0V)
53	XIN	I	Input to crystal oscillator circuit. Depending on the mode the frequency is either f = 8.4672 or 16.9344MHz.
54	XOUT	O	Output from crystal oscillator circuit. Depending on the mode the frequency is either f = 8.4672 or 16.9344MHz.
55	SEL1	I	Mode selection input 1.
56	SEL2	I	Mode selection input 2.
57	SEL3	I	Mode selection input 3.
58	SEL4	I	Mode selection input 4. Code switch input for audio data output. 2's complement output when "L", offset binary output when "H".
59	SEL5	I	Mode selection input 5. Code switch input for audio data output. Serial output when "L", parallel output when "H".
60	APTR	O	Output for aperture compensation. "H" when R-ch.
61	APTL	O	Output for aperture compensation. "H" when L-ch.
62	C1F1	O	Monitor output reporting status of error correction for C1 decoder. When SEL5 = 'L', DA01 (LSB of parallel audio data) is output when SEL5 = 'H'.
63	C1F2	O	Monitor output reporting status of error correction for C1 decoder when SEL5 = 'L', DA02 is output when SEL5 = 'H'.

Pin No.	Symbol	I/O	Description
64	C2F1	O	Monitor output reporting status of error correction for C2 decoder when SEL5 = 'L', DA03 is output when SEL5 = 'H'.
65	C2F2	O	Monitor output reporting status of error correction for C2 decoder when SEL5 = 'L', DA04 is output when SEL5 = 'H'.
66	C2FL	O	When SEL5 = 'L', output of status condition. C2FL is set 'H' when the C2 sequence. Presently being corrected becomes impossible to correct. DA05 is output when SEL5 = 'H'.
67	C2PO	O	Display output of the C2 pointer when SEL5 = 'L', DA06 is output when SEL5 = 'H'.
68	XTFR	O	When SEL5 = 'L', output of read frame dock which is 7.35KHz of the crystal system. DA07 is output when SEL5 = 'H'.
69	PBFR	O	When SEL5 = 'L', output of write frame clock which is 7.35KHz when locked by the crystal system. DA08 is output when SEL5 = 'H'.
70	$\overline{\text{PBCK}}$	O	When SEL5 = 'L', output of VCO/2 (f = 4.3218MHz when locked by the EFM signal). DA09 is output when SEL5 = 'H'.
71	FSDW	O	When SEL5 = 'L', output for unprotected frame sync patterns. DA10 is output when SEL5 = 'H'.
72	ULKFS	O	Output for display of status of frame sync protection when SEL5 = 'L', DA11 is output when SEL5 = 'H'.
73	V_{DD}	—	Power supply (+ 5V).
74	$\overline{\text{JIT}}$	O	When SEL5 = 'L', output for display of either RAM overflow or underflow for +4 frame jitter absorption. DA12 is output when SEL5 = 'H'.
75	ZWDCK	O	When SEL5= 'L', output for strobe signal (352.8KHz when DF is ON, 176.4KHz when DF is OFF). DA13 is output when SEL5 = 'H'.
76	$\overline{\text{BLCK}}$	O	When SEL5 = 'L', inverse output of BLCK. DA14 is output when SEL5 = 'H'.
77	BLCK	O	When SEL5 = 'L', bit clock output (4.2336MHz when DF is ON, 2.1168MHz when DF is OFF) DA15 is output when SEL5 = 'H'.
78	DATA	O	Serial data output of audio signal when SEL5 = 'L'. DA16 is output when SEL5 = 'H'.
79	WDCK	O	Strobe signal output. Output is 176.4KHz when DF is on. Output is 88.2KHz when DF is off.
80	CHCK	O	Strobe signal output. Output is 88.2KHz when DF is on. Output is 44.1KHz when DF is off.

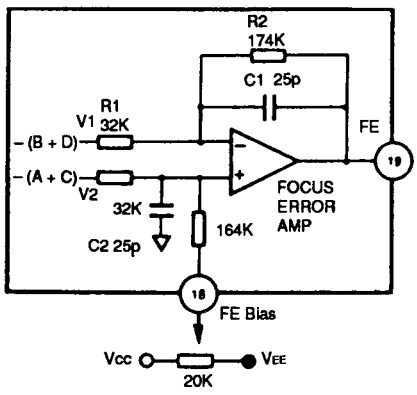
(2) RF AMPLIFIER (KA9201) : WIC01



RF I-V AMP(1) and RF I-V AMP(2) are converted into voltage from current signal of PD1 (A + C) and PD2 (B + D) through the 58Kohm internal resistor. Furthermore, it is added in RF summing amplifier, this signal (A + B + C + D) is output at RFO (pin 2). The RF output voltage (low frequency) is as follow.

VRF = – R3* (iPD1 + iPD2)
= – R3* (V1/R1 + V2/R2)
= – 22K* (V1/10K + V2/10K)
= – 2.2* (V1 + V2)

(3) FOCUS ERROR AMPLIFIER (KA9201) : WIC01



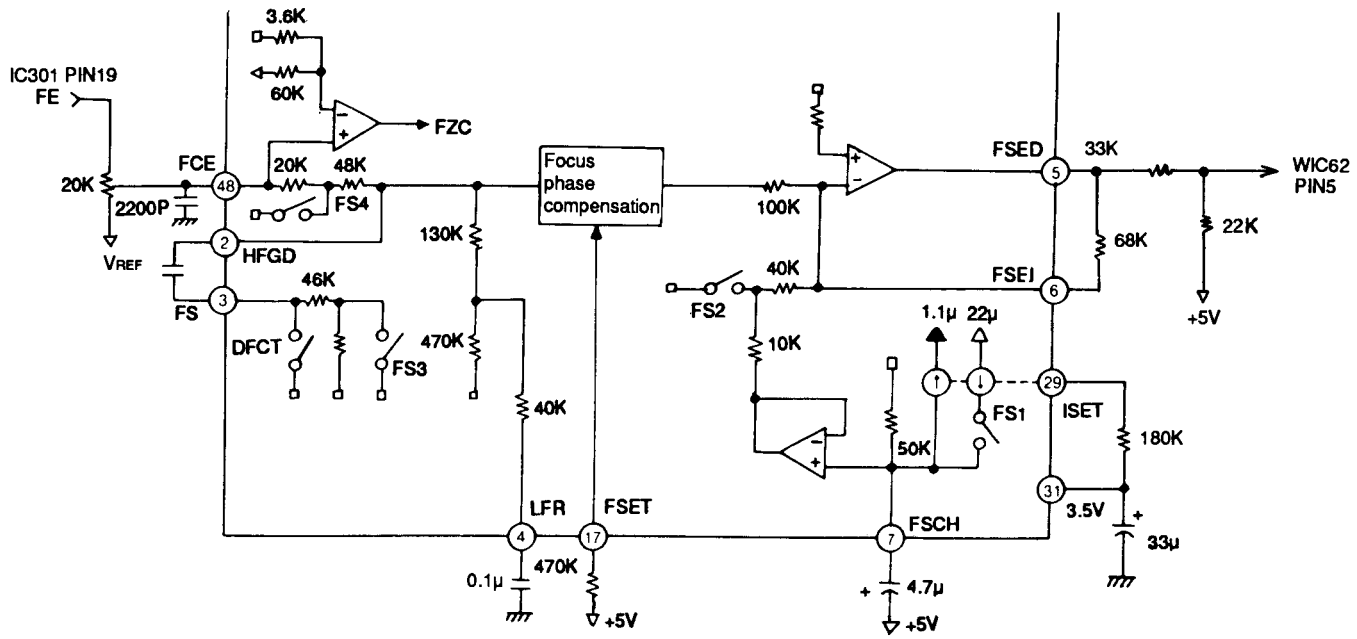
The Focus Error AMP is the difference between RF I-V AMP (1) output (A + C) and RF I-V AMP(2) output (B + D). This two [– (A + C), –(B + D)] signals are each applied to the (–) and (+) input of Focus Error AMP.
As the result of differential voltage, Focus Error signal is appeared at FE pin (pin 19).
This FE output voltage (low frequency) become [(A + C) – (B + D)], as follow.

V_{FE} = R2/R1 x (V2–V1)
= 5.4 (V2 – V1)

The focus error voltage is directed to the focus servo circuit, to maintain optimum focusing at all times.

(4) FOCUS SERVO SYSTEM (KA8309) : WIC21

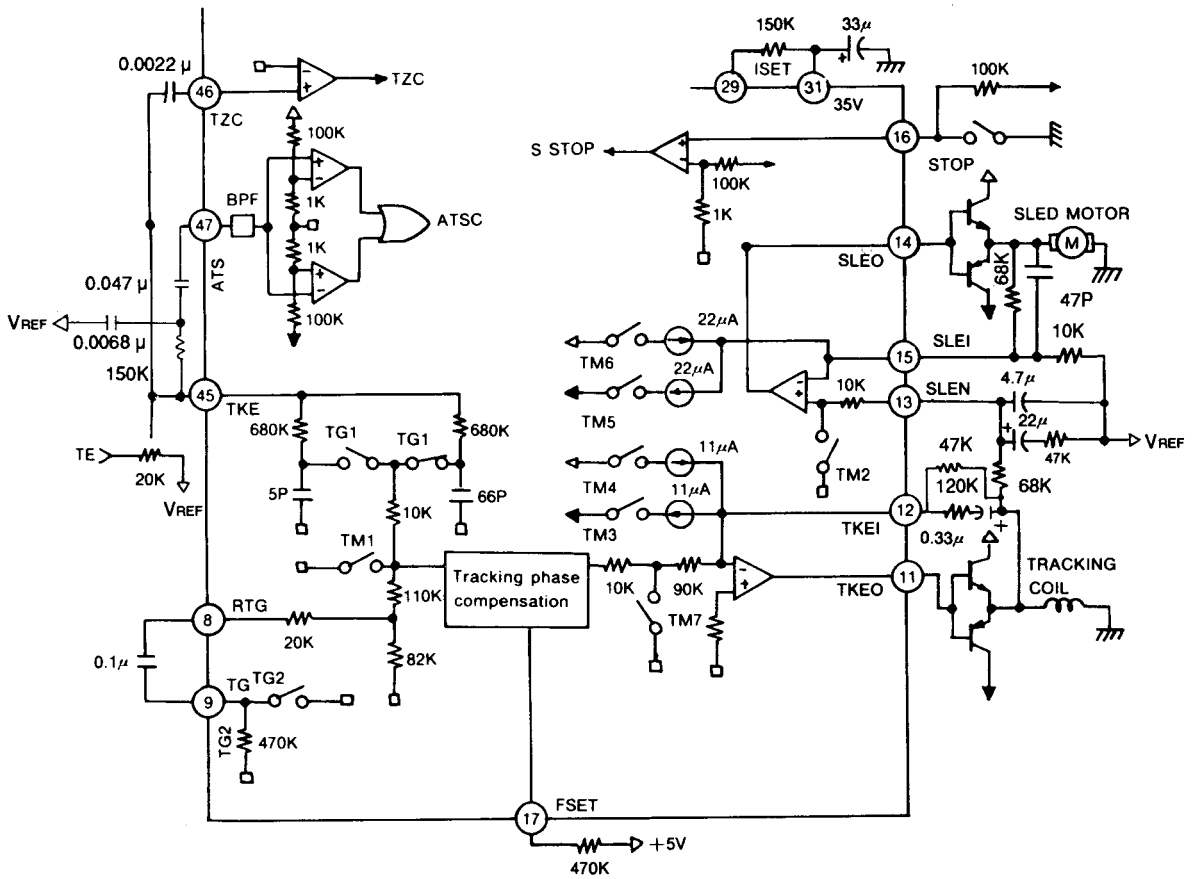
The below is a block diagram of the focus servo system.
When FS3 is switched on, the high frequency gain can be reduced by forming a low frequency time constant through a capacitor connected across pins 2 and 3 and the internal resistor.
The capacitor across the pin 4 and GND has a time constant to raise the low frequency usually playback condition.
The peak frequency of the focus phase compensation is inversely proportional to the resistor connected to pin 17 (about 1.2KHz when the resistor is 470 kΩ).



The focus search peak becomes about ± 1.1 Vp-p with above constant. The peak is inversely proportional to the resistor connected across the pins 29 and 31. However, when this resistor is varied, the peaks of track jump and sled kick also vary.
The FZC comparator invert input is set to 5.7% of the difference between the reference voltage Vcc and Vc (Pin 1) : 5.7% x (Vcc – Vc).

(5) TRACKING SLED SERVO SYSTEM (KA8309) : WIC21

The below is a block diagram of the tracking sled servo system.
The capacitor across pins 8 and 9 has a time constant to lower the high frequency when TG2 is switched off. The tracking phase compensation peak frequency is inversely proportional to the resistor connected to pin 17 (about 1.2KHz when the resistor is 470KΩ).
For a tracking jump in the FWD or REV direction, TM3 or TM4 are set to ON. At this time, the peak voltage fed to the tracking coil is determined by the TM3 and TM4 current values and the feedback resistor from pin 12. That is:
Track jump peak voltage = TM3 (TM4) current value x feedback resistor value



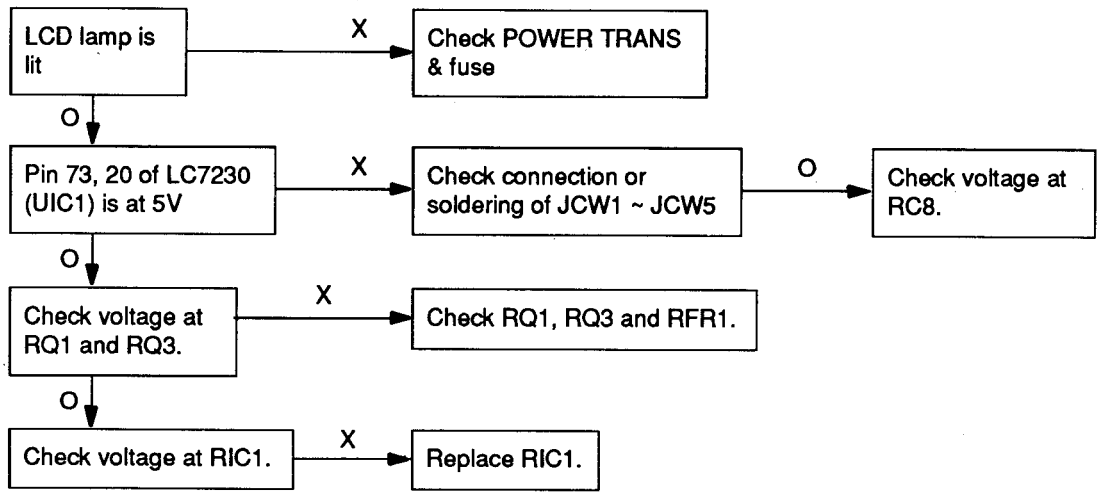
The FWD or REV sled kick is done by setting TM5 or TM6 ON. At this time, the peak voltage added to the sled motor is determined by the TM5 or TM6 current value and the feedback resistor from pin 15.
Sled jump peak voltage = TM5 (TM6) current value x feedback resistor value
Each SW current value is determined by the resistor connected to pins 29 and 31.
When the resistor is at about 150KΩ ,
TM3 or TM4 is + 11 μA and TM5 or TM6 is + 22 μA.
This current value is almost inversely proportional to the resistor, variable within a range of about 5 to 40 μA for TM3.
STOP is the ON/OFF detection signal for the limit SW or the sled motor's innermost circumference.

■ TROUBLE SHOOTING

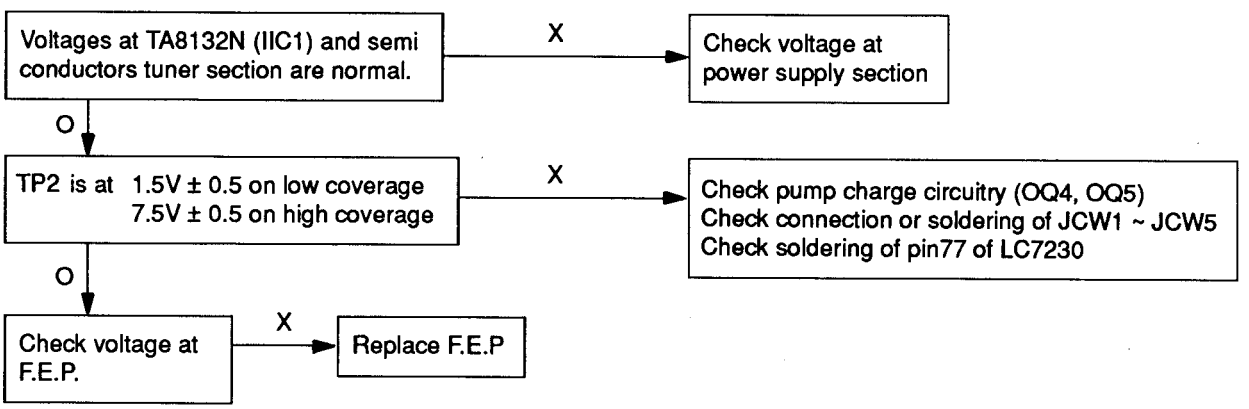
1. MAIN SECTION

O : Yes/Normal
X : No/Abnormal

1) POWER ON/OFF PROBLEM

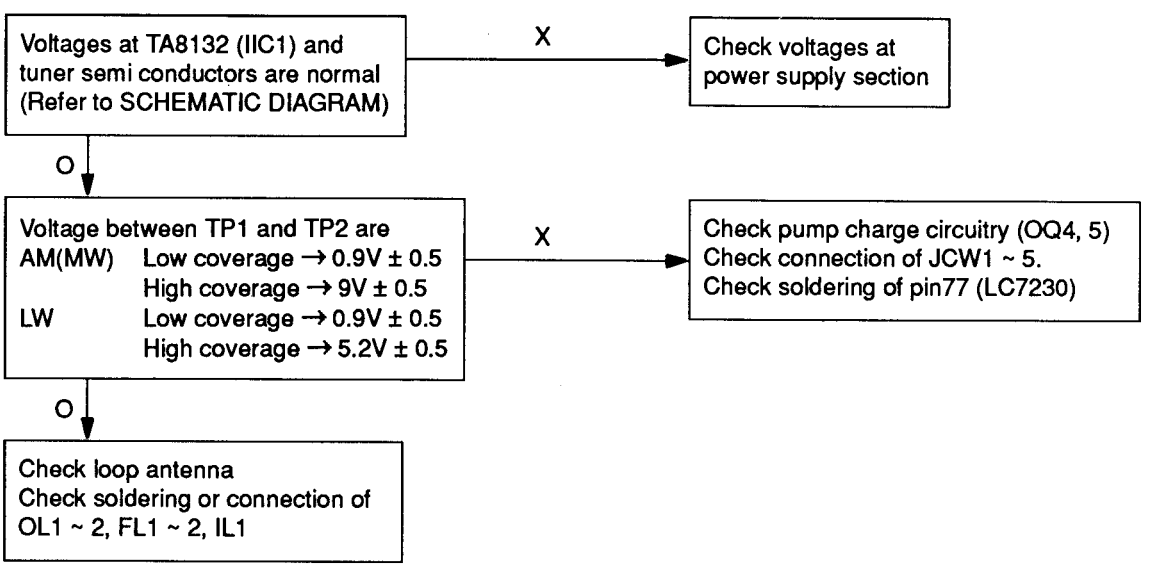


2) FM NO SOUND

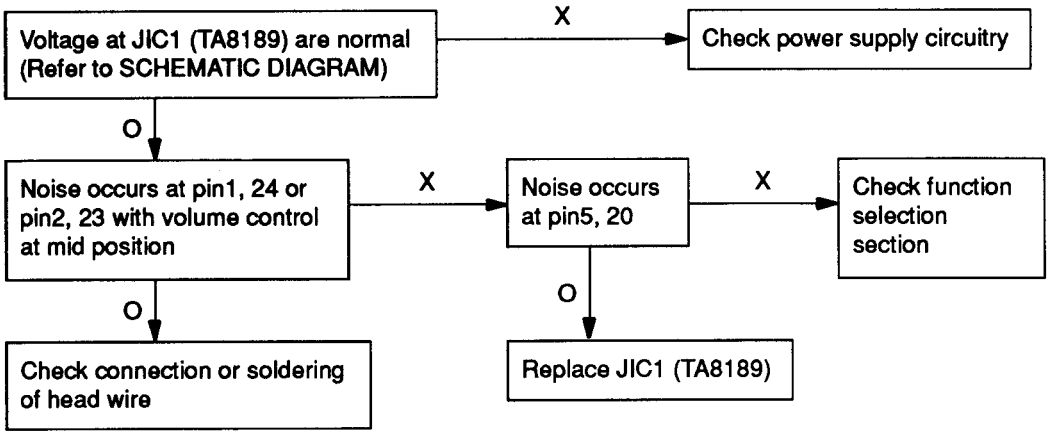

Voltages at TA8132N (IIC1) and semi conductors tuner section are normal.
X
Check voltage at power supply section
O
TP2 is at 1.5V ± 0.5 on low coverage
7.5V ± 0.5 on high coverage
X
Check pump charge circuitry (OQ4, OQ5)
Check connection or soldering of JCW1 ~ JCW5
Check soldering of pin77 of LC7230
O
Check voltage at F.E.P.
X
Replace F.E.P

* F.E.P : FRONT END PACK

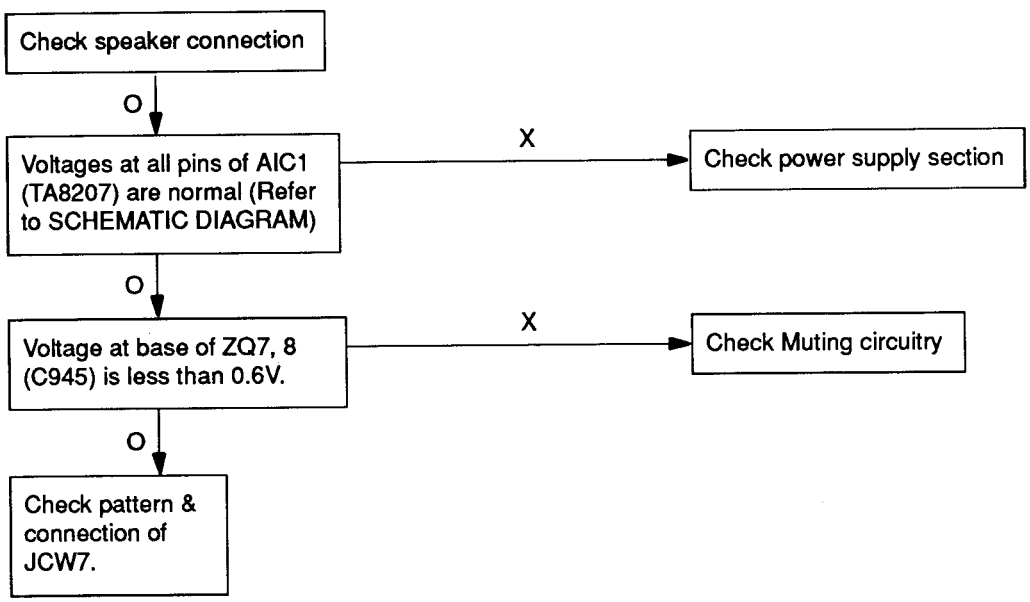
3) AM NO SOUND


Voltages at TA8132 (IIC1) and tuner semi conductors are normal (Refer to SCHEMATIC DIAGRAM)
X
Check voltages at power supply section
O
Voltage between TP1 and TP2 are
AM(MW) Low coverage → 0.9V ± 0.5
High coverage → 9V ± 0.5
LW Low coverage → 0.9V ± 0.5
High coverage → 5.2V ± 0.5
X
Check pump charge circuitry (OQ4, 5)
Check connection of JCW1 ~ 5.
Check soldering of pin77 (LC7230)
O
Check loop antenna
Check soldering or connection of OL1 ~ 2, FL1 ~ 2, IL1

4) TAPE NOT PLAYING


Voltage at JIC1 (TA8189) are normal (Refer to SCHEMATIC DIAGRAM)
X
Check power supply circuitry
O
Noise occurs at pin1, 24 or pin2, 23 with volume control at mid position
X
Noise occurs at pin5, 20
X
Check function selection section
O
O
Check connection or soldering of head wire
Replace JIC1 (TA8189)

5) AUDIO OUTPUT PROBLEM

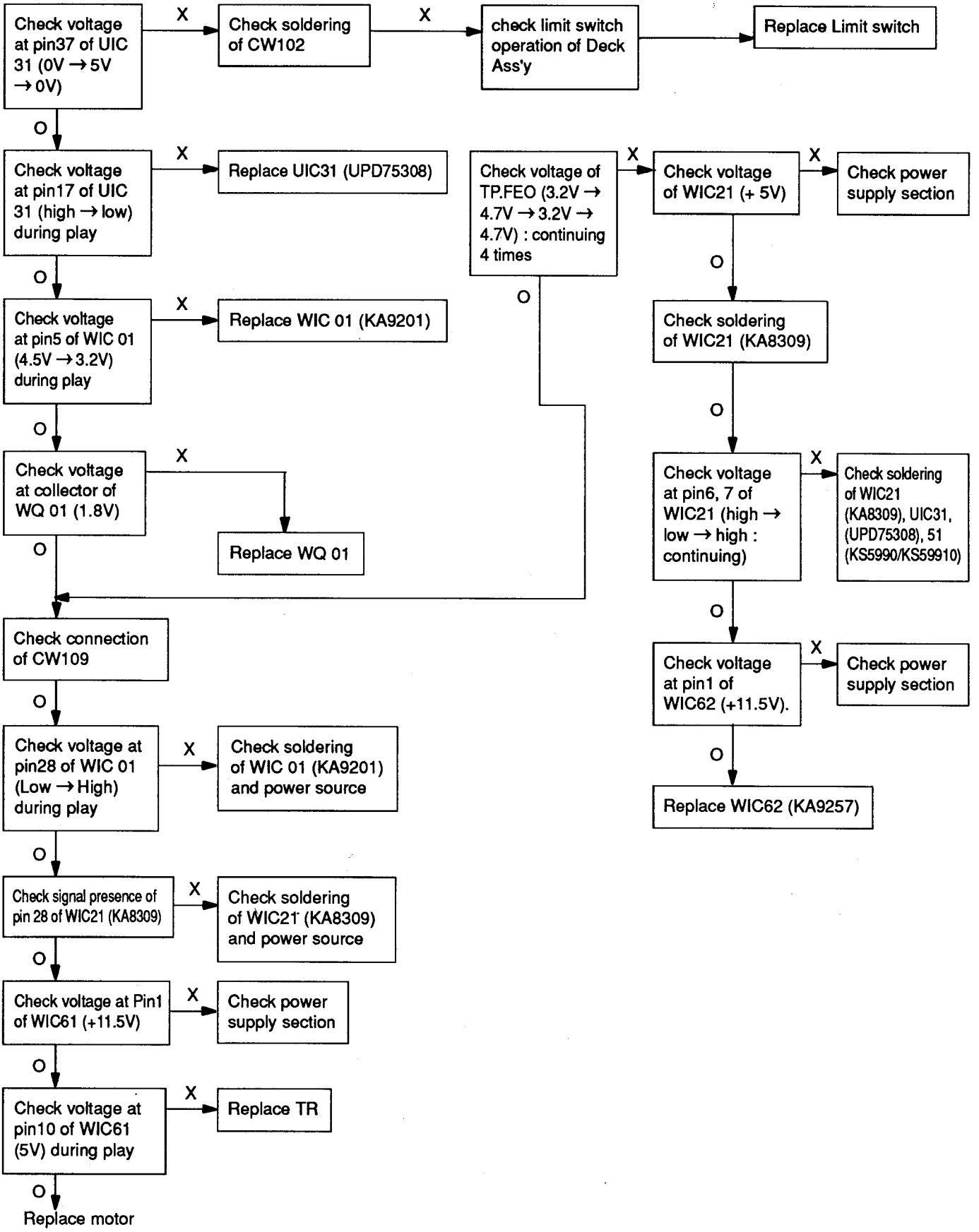

Check speaker connection
O
Voltages at all pins of AIC1 (TA8207) are normal (Refer to SCHEMATIC DIAGRAM)
X
Check power supply section
O
Voltage at base of ZQ7, 8 (C945) is less than 0.6V.
X
Check Muting circuitry
O
Check pattern & connection of JCW7.

2. CDP

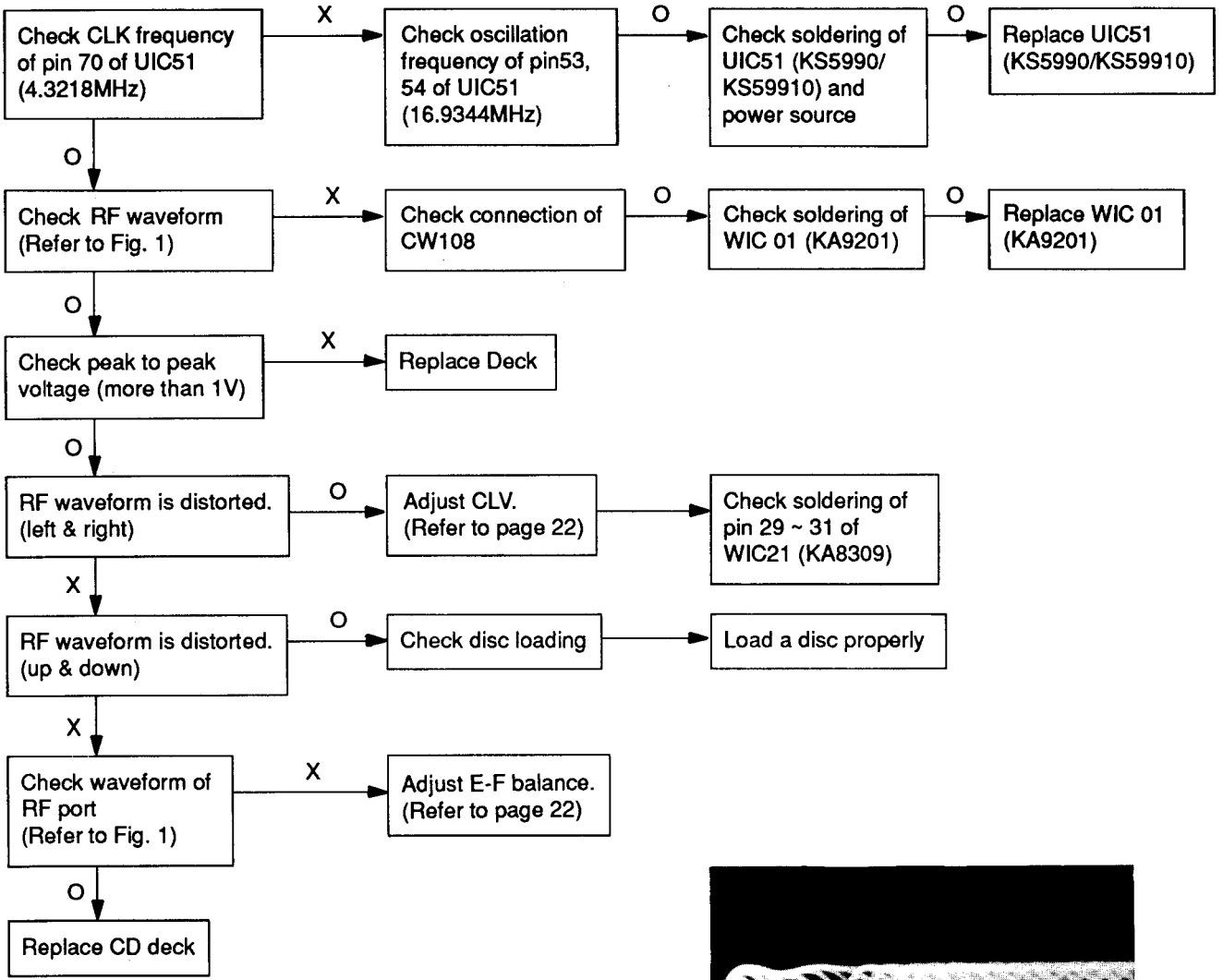
* Be sure not to use a warped or dirty disc in troubleshooting.

O : Yes/Normal
X : No/Abnormal

1) DISC DOESN'T ROTATE


Check voltage at pin37 of UIC 31 (0V → 5V → 0V)
X
Check soldering of CW102
X
check limit switch operation of Deck Ass'y
Replace Limit switch
O
Check voltage at pin17 of UIC 31 (high → low) during play
X
Replace UIC31 (UPD75308)
O
Check voltage at pin5 of WIC 01 (4.5V → 3.2V) during play
X
Replace WIC 01 (KA9201)
O
Check voltage at collector of WQ 01 (1.8V)
X
Replace WQ 01
O
Check connection of CW109
O
Check voltage at pin28 of WIC 01 (Low → High) during play
X
Check soldering of WIC 01 (KA9201) and power source
O
Check signal presence of pin 28 of WIC21 (KA8309)
X
Check soldering of WIC21 (KA8309) and power source
O
Check voltage at Pin1 of WIC61 (+11.5V)
X
Check power supply section
O
Check voltage at pin10 of WIC61 (5V) during play
X
Replace TR
O
Replace motor
Check voltage of TP.FEO (3.2V → 4.7V → 3.2V → 4.7V) : continuing 4 times
X
Check voltage of WIC21 (+ 5V)
X
Check power supply section
O
Check soldering of WIC21 (KA8309)
O
Check voltage at pin6, 7 of WIC21 (high → low → high : continuing)
X
Check soldering of WIC21 (KA8309), UIC31, (UPD75308), 51 (KS5990/KS59910)
O
Check voltage at pin1 of WIC62 (+11.5V).
X
Check power supply section
O
Replace WIC62 (KA9257)
O

2) LEAD IN NOT WORKING



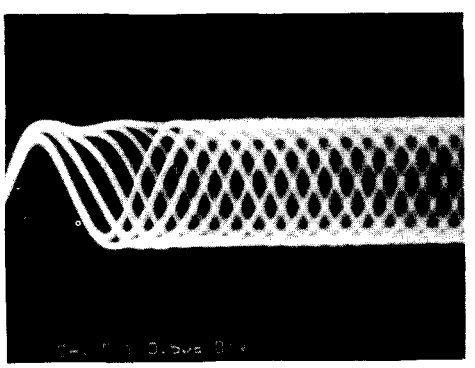
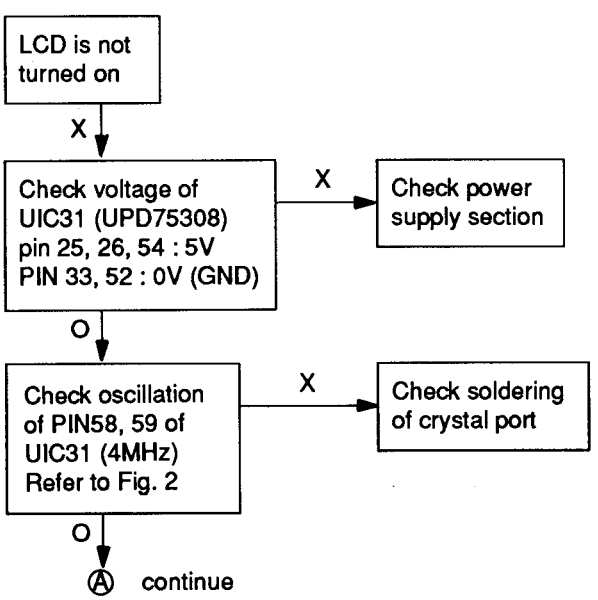


FIG. 1

3) DISPLAY NOT WORKING


LCD is not turned on
X
Check voltage of UIC31 (UPD75308) pin 25, 26, 54 : 5V PIN 33, 52 : 0V (GND)
X
Check power supply section
O
Check oscillation of PIN58, 59 of UIC31 (4MHz) Refer to Fig. 2
X
Check soldering of crystal port
O
Ⓐ continue

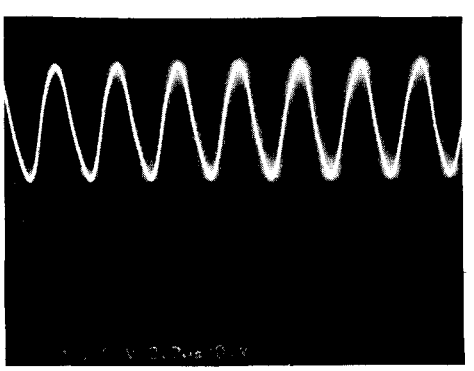
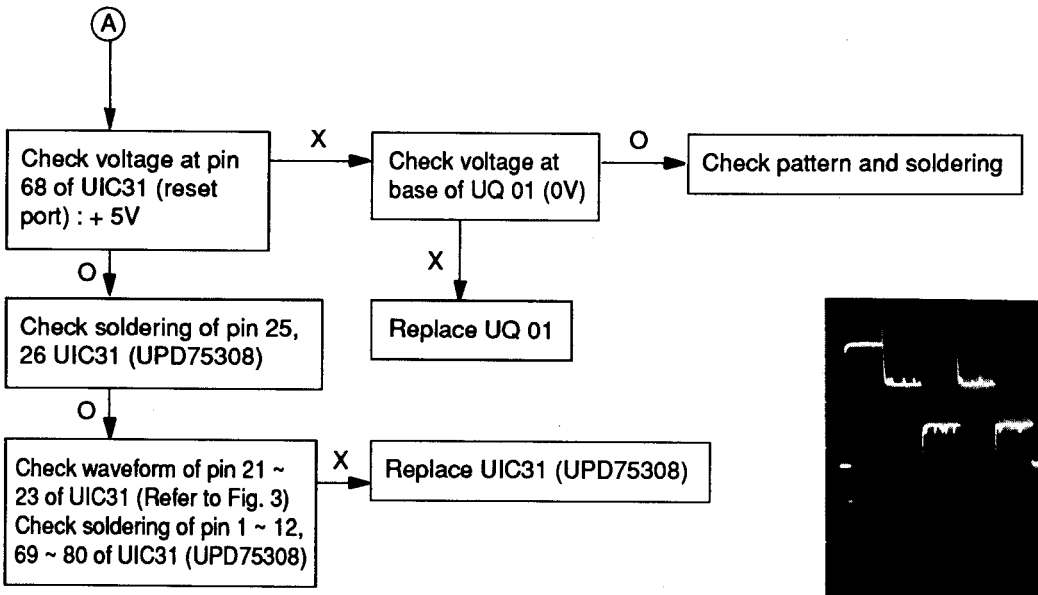


FIG. 2


A
Check voltage at pin 68 of UIC31 (reset port) : + 5V
X
Check voltage at base of UQ 01 (0V)
O
Check pattern and soldering
O
X
Check soldering of pin 25, 26 UIC31 (UPD75308)
Replace UQ 01
O
Check waveform of pin 21 ~ 23 of UIC31 (Refer to Fig. 3) Check soldering of pin 1 ~ 12, 69 ~ 80 of UIC31 (UPD75308)
X
Replace UIC31 (UPD75308)

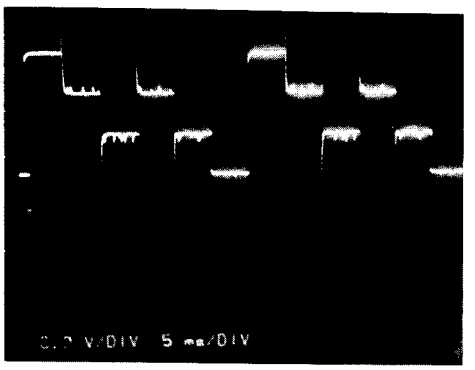
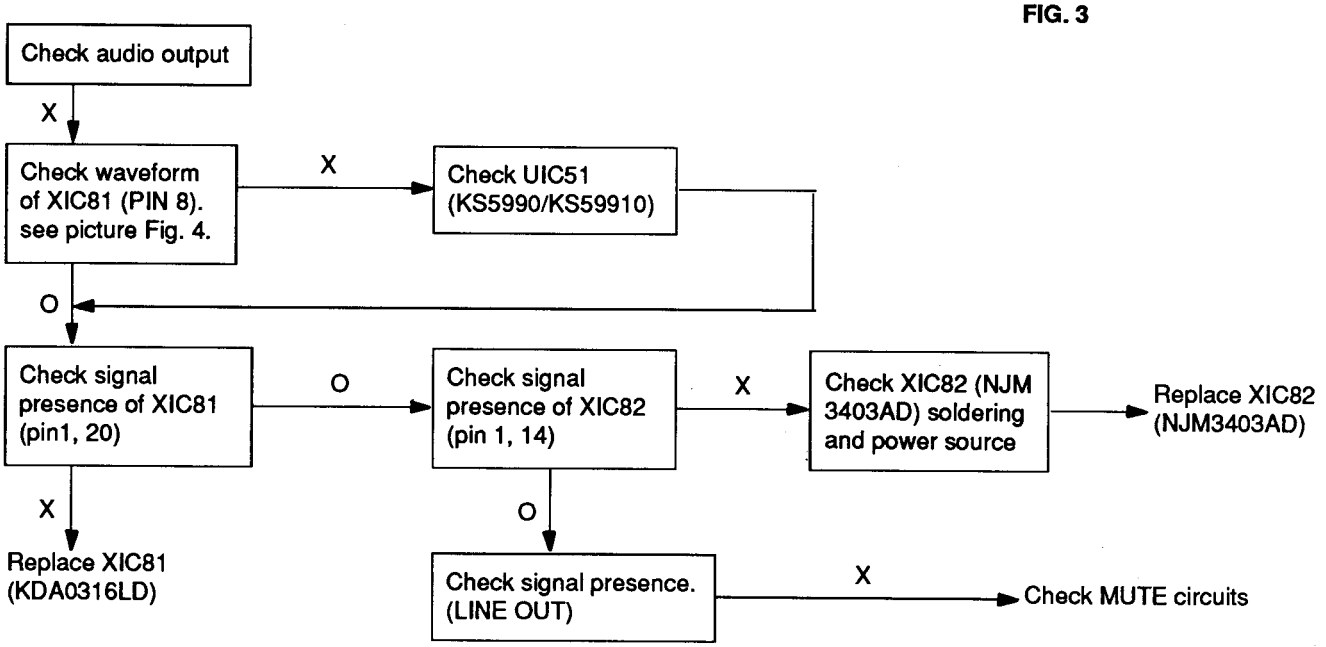


FIG. 3

4) SOUND NO OUTPUT



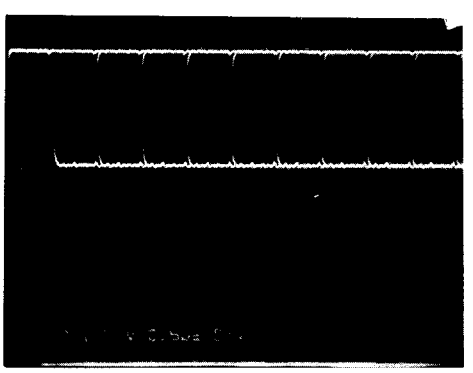


FIG. 4

■ ADJUSTMENT

Adjustments to this unit have already been made during production procedure.
Therefore, no adjustment is needed. If parts related to the adjustment are replaced, or readjustment is required, proceed with adjustments in the order given below.

1. TUNER

1) MEASURING INSTRUMENTS REQUIRED

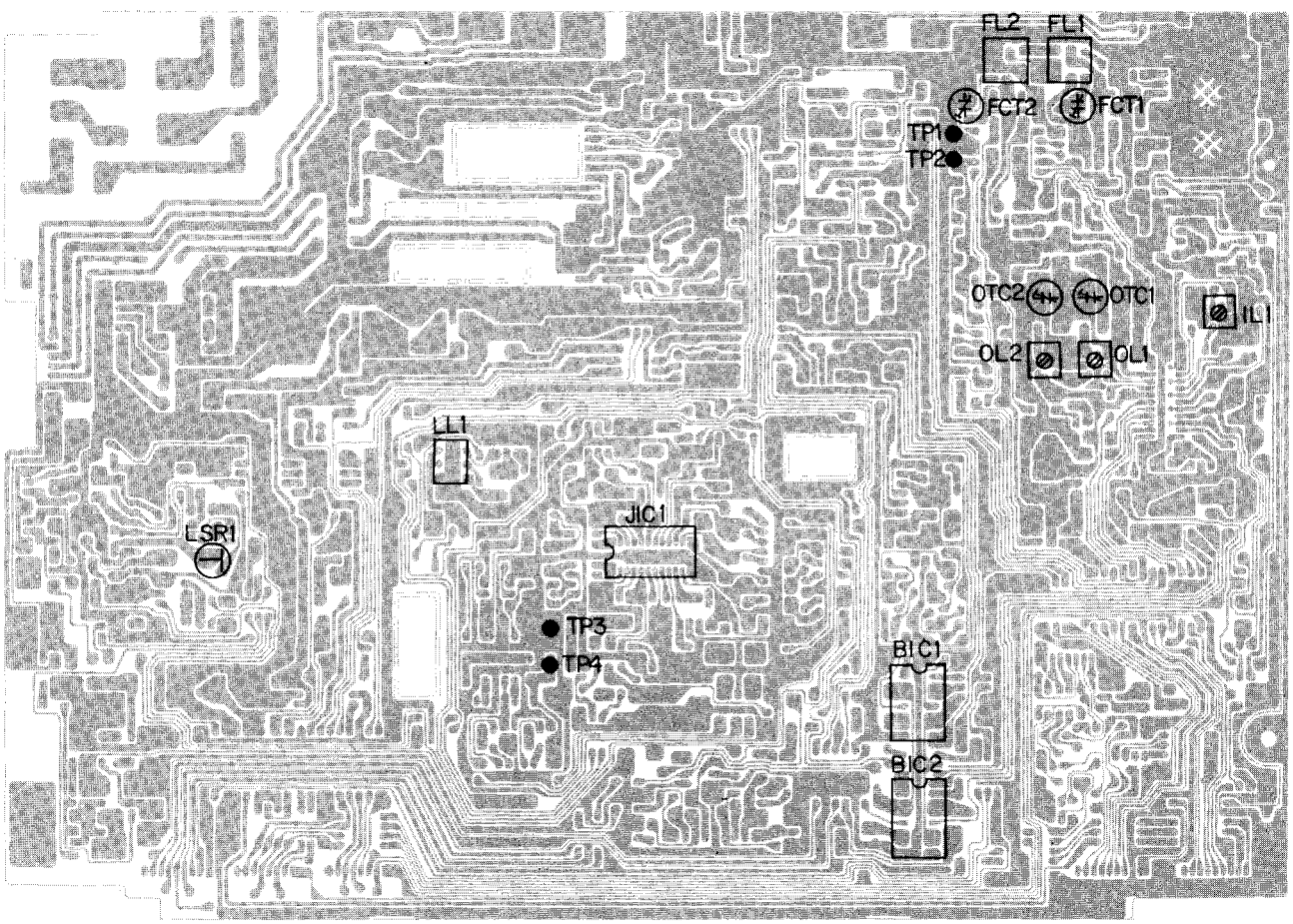
(1) AM standard signal generator (S.S.G)
: 400Hz, 30% MOD.
(2) OSCILLOSCOPE
(3) VTVM (4) Frequency counter
(5) Loop antenna
(6) Dummy load (4 Ω)
(7) DC voltmeter

2) IMPORTANT

(1) Check the power source voltage.
(2) Set function and band switches to a band to be aligned.
(3) The equalizer, volume and balance control should be turned to the mid position.

3) LOCATION OF ADJUSTMENT POINTS (PARTS SIDE)

MAIN PCB



4) ADJUSTMENT PROCEDURE

(1) FM ADJUSTMENT

FM adjustment is not needed.

(2) AM ADJUSTMENT

① 2 BAND (FM/AM)

STEP	ITEM	CONNECTION	SSG FREQ.	FREQ. SETTING	ADJUSTMENT POINT	RESULT & REMARK
1	Intermidiate frequency (IF) adjustment	FIG. 2	522KHz	522KHz	IL1	Maximum output
2	AM frequency coverage adjustment	FIG. 1 Connect DC voltmeter to TP2 and GND (TP1).	—	522KHz	OL1	0.9V
3			—	1611KHz	OTC1	9V
4	Repeat step 2 and 3 several times.					
5	AM tracking adjustment	FIG. 2	594KHz	594KHz	FL1	Maximum output
6			1404KHz	1404KHz	FCT1	Maximum output
7	Repeat step 5 and 6 several times.					

② 3 BAND (FM/MW/LW) MW band : Refer to 2 band section. (MW → AM)

STEP	ITEM	CONNECTION	SSG FREQ.	FREQ. SETTING	ADJUSTMENT POINT	RESULT & REMARK
1	LW frequency coverage adjustment	FIG. 1	—	146KHz	OL2	0.9V
2			—	290KHz	OTC2	5.2V
3	Repeat step 1 and 2.					
4	LW tracking adjustment	FIG. 2	160KHz	160KHz	FL2	Maximum output
5			270KHz	270KHz	FCT2	Maximum output
6	Repeat step 4 and 5 several times.					

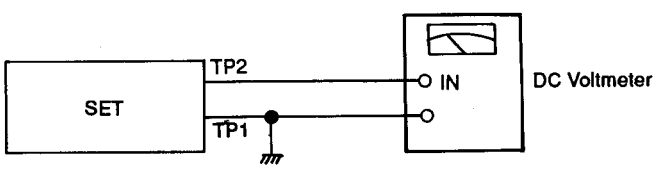


FIG. 1) AM FREQUENCY COVERAGE

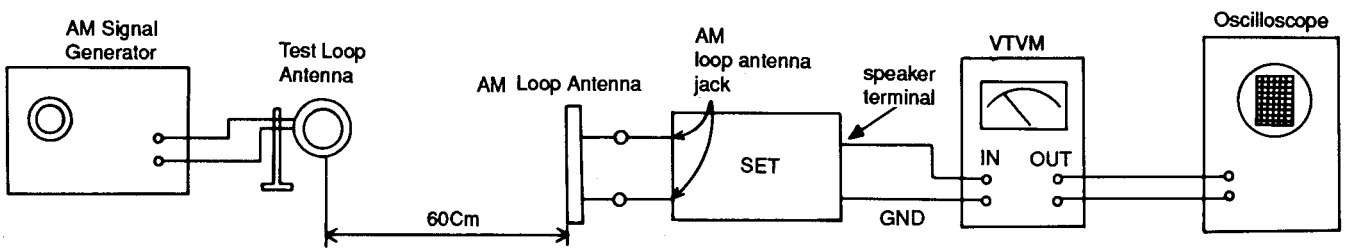
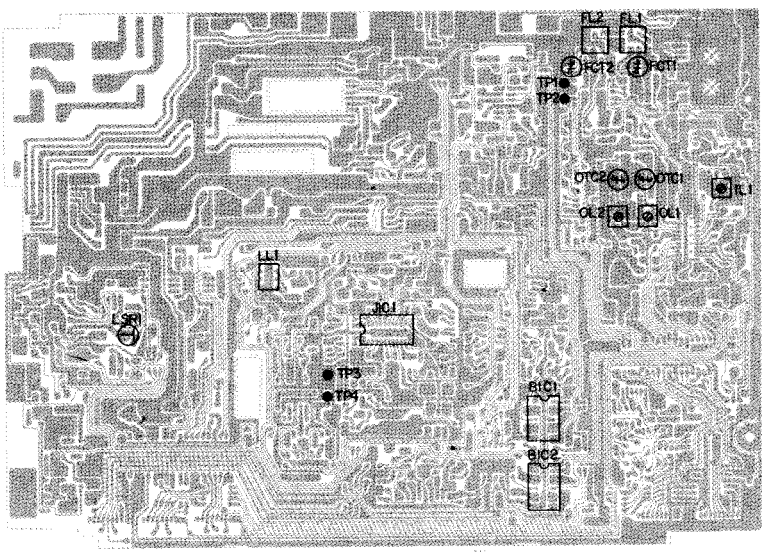


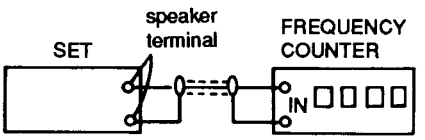
FIG. 2) AM TRACKING ADJUSTMENT

2. TAPE

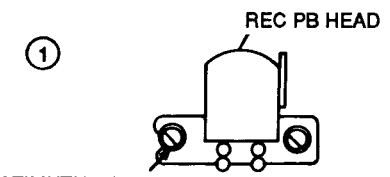
1) ADDITIONAL TEST EQUIPMENTS
   ① MTT-111 (or equivalent) : Test tape on which 3KHz signal is recorded → Tape speed adjustment.
   ② MTT-5521 (or equivalent) or blank tape → Record bias oscillation adjustment
   ③ MTT-114 (or equivalent) : Test tape on which 10KHz signal is recorded → Azimuth adjustment.
2) LOCATION OF ADJUSTMENT POINTS (PARTS SIDE)

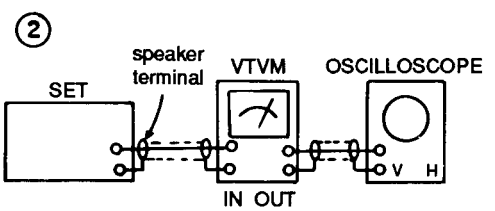
MAIN PCB



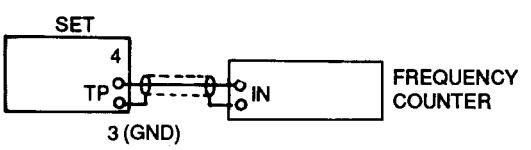


<FIG. 1>





<FIG. 2>



<FIG. 3>

3) ADJUSTMENT PROCEDURE * High speed adjustment is not required.

ITEM	CONNECTION	PREPARATION	ADJUSTMENT POINT	RESULT & REMARK
TAPE SPEED (normal speed) ADJUSTMENT	FIG. 1	Insert MTT-111 to deck A or B. Press PLAY.	LSR1	3KHz
AZIMUTH (DECK A, B) ADJUSTMENT	FIG. 2 ②	Insert MTT-114 to deck A. (and B) Press PLAY.	<FIG. 2> : ①	Maximum output and same phase of L, R channel. Fix the screw after adjustment.
BIAS OSCILLATION FREQUENCY ADJUSTMENT	FIG. 3	Insert MTT-5521 to deck A. Press RECORD.	LL1	85KHz

3. CD PLAYER

1) MEASURING INSTRUMENT

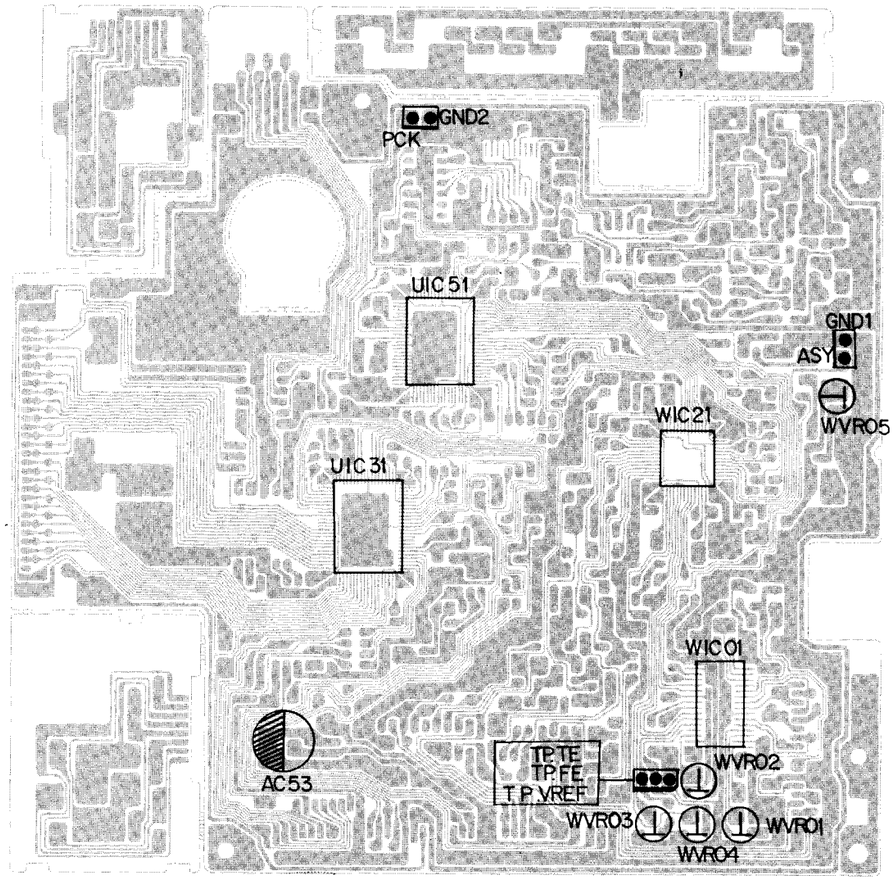
1) Oscilloscope (Frequency ≧ 100MHz)
2) Probe (10 : 1)
3) Frequency counter

2) IMPORTANTS

1) Semi-Volume position can be a little different according to unit.
2) Be sure not to use a warped or dirty disc in adjusting.
3) When adjusting Semi-Volume, use plastic screw driver.

3) LOCATION OF ADJUSTMENT POINTS (PARTS SIDE)

CD PCB

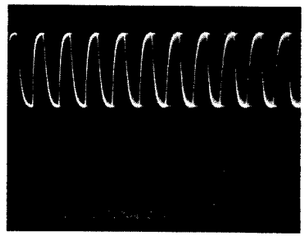


WVR 01	:	E-F balance adjustment	TP.FE	:	To oscilloscope signal port
WVR 02	:	Focus bias adjustment	TP.TE	:	To oscilloscope signal port
WVR 03	:	Tracking gain adjustment	PCK	:	To oscilloscope signal port
WVR 04	:	Focus gain adjustment	TP. VREF	:	To oscilloscope GND port
WVR 05	:	CLV adjustment	GND2	:	To oscilloscope GND port

4) ADJUSTMENT PROCEDURE

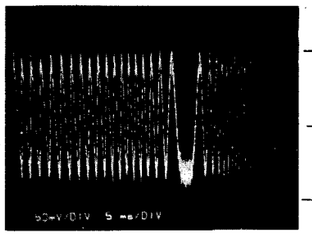
(1) CLV ADJUSTMENT
① Turn power on and load a disc.
② Frequency counter connection
(+) terminal ; PCK
(–) terminal ; GND2
③ Connect ASY to GND2
④ Adjust WVR 05 so the frequency counter reads 4.50 ±0.005MHz. (Adjust in stop mode)
⑤ Disconnect ASY from GND1

CLV



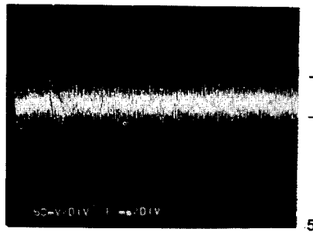
(2) E-F BALANCE ADJUSTMENT
① Turn power on and load a disc.
② Press play.
③ Oscilloscope setting and connection
{VOLT/DIV ; 50mV {(+) terminal ; TP.TE
{TIME/DIV ; 5mS {(–) terminal ; TP. VREF
④ Adjust WVR 03 fully counter clockwise
⑤ Adjust WVR 01 so the waveform is as shown in the picture.
⑥ Set WVR 03 back to the place it was before adjustment.

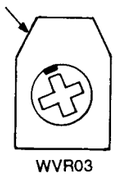
E-F BALANCE



(3) TRACKING GAIN ADJUSTMENT
① Turn power on and load a disc.
② Press play.
③ Oscilloscope setting and connection
{VOLT/DIV ; 50mV {(+) terminal ; TP.TE
{TIME/DIV ; 1mS {(–) terminal ; TP.VREF
④ Adjust WVR 03 so the peak to peak waveform is as shown in the picture.

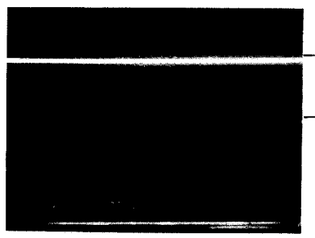
TRACKING GAIN

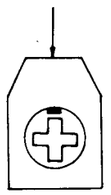




(4) FOCUS BIAS ADJUSTMENT
① Turn power on and load a disc.
② Oscilloscope setting and connection
{VOLT/DIV ; 10mV {(+) terminal ; TP.FE
{TIME/DIV ; 20 μS {(–) terminal ; TP. VREF
③ Adjust WVR 02 so the waveform is as shown in picture. (Adjust in stop mode)

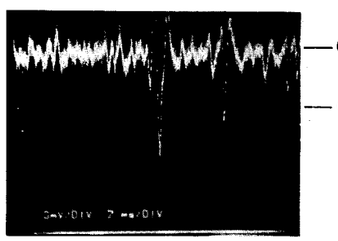
FOCUS BIAS

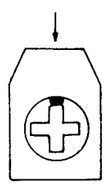




(5) FOCUS GAIN ADJUSTMENT
① Turn power on and load a disc.
② Press play.
③ Oscilloscope setting and connection
{VOLT/DIV ; 10mV {(+) terminal ; TP.FE
{TIME/DIV ; 2mS {(–) terminal ; TP. VREF
④ Adjust WVR 04 so the peak to peak waveform is as shown in the picture.

FOCUS GAIN

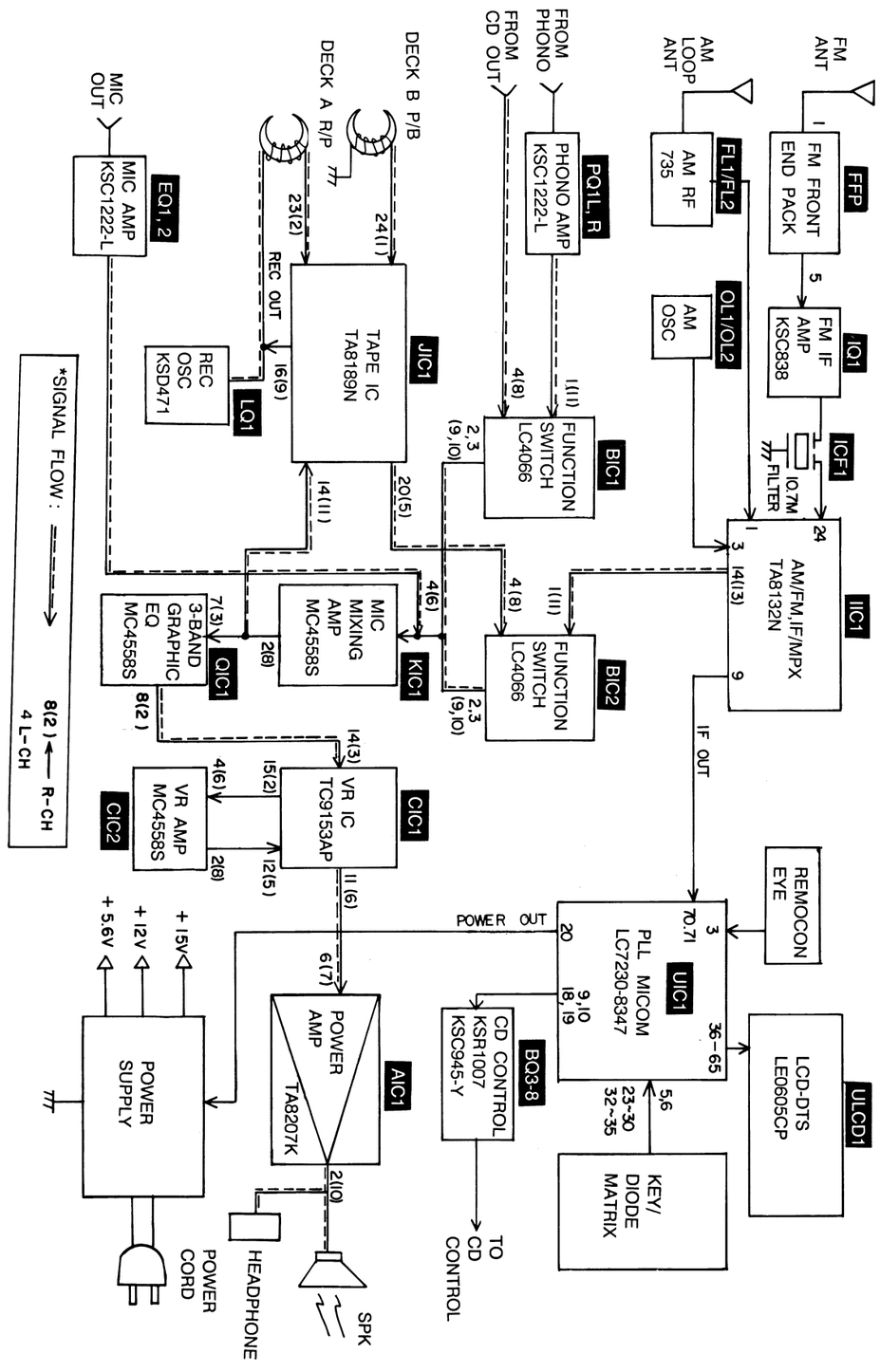




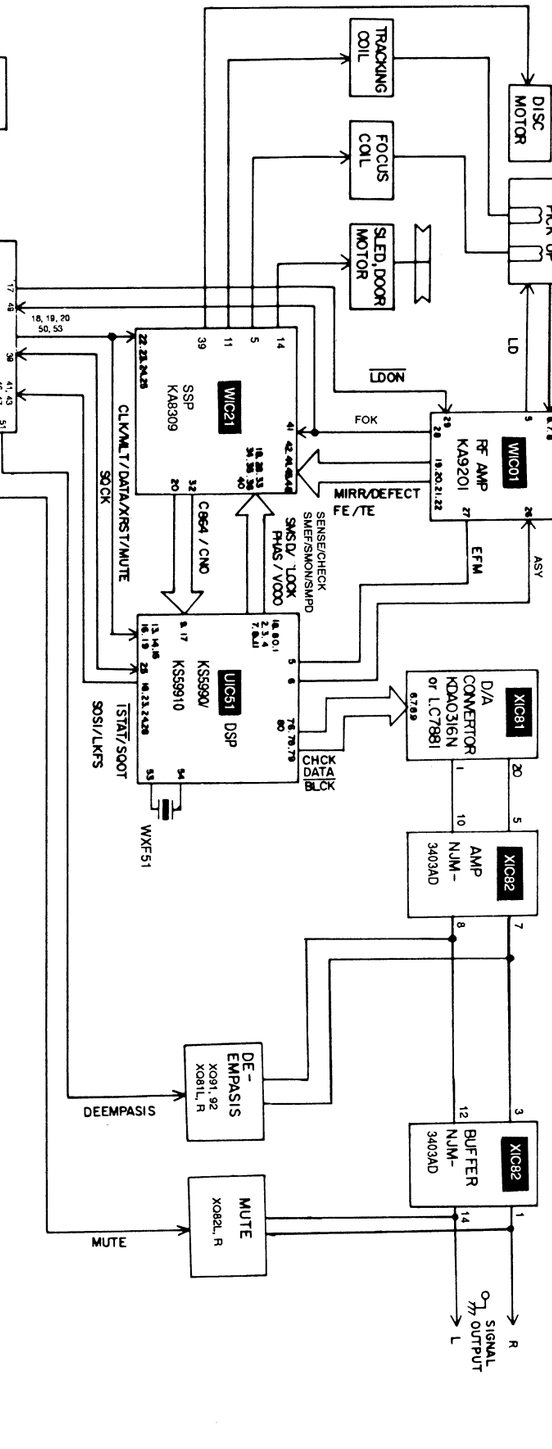
10 : 1 damping probe was used

■ BLOCK DIAGRAM

1. MAIN SECTION



2. CDP SECTION

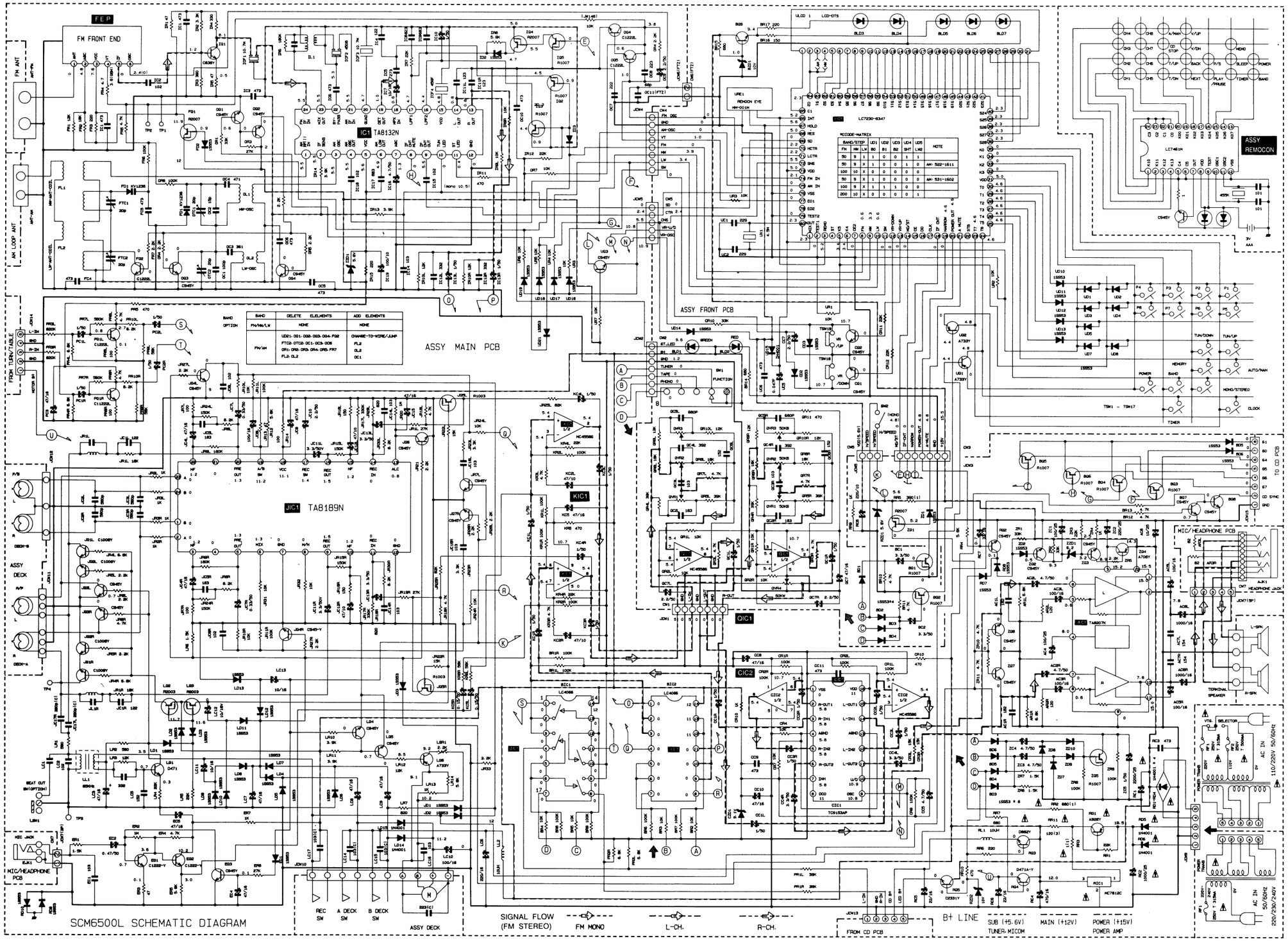


MC-Service

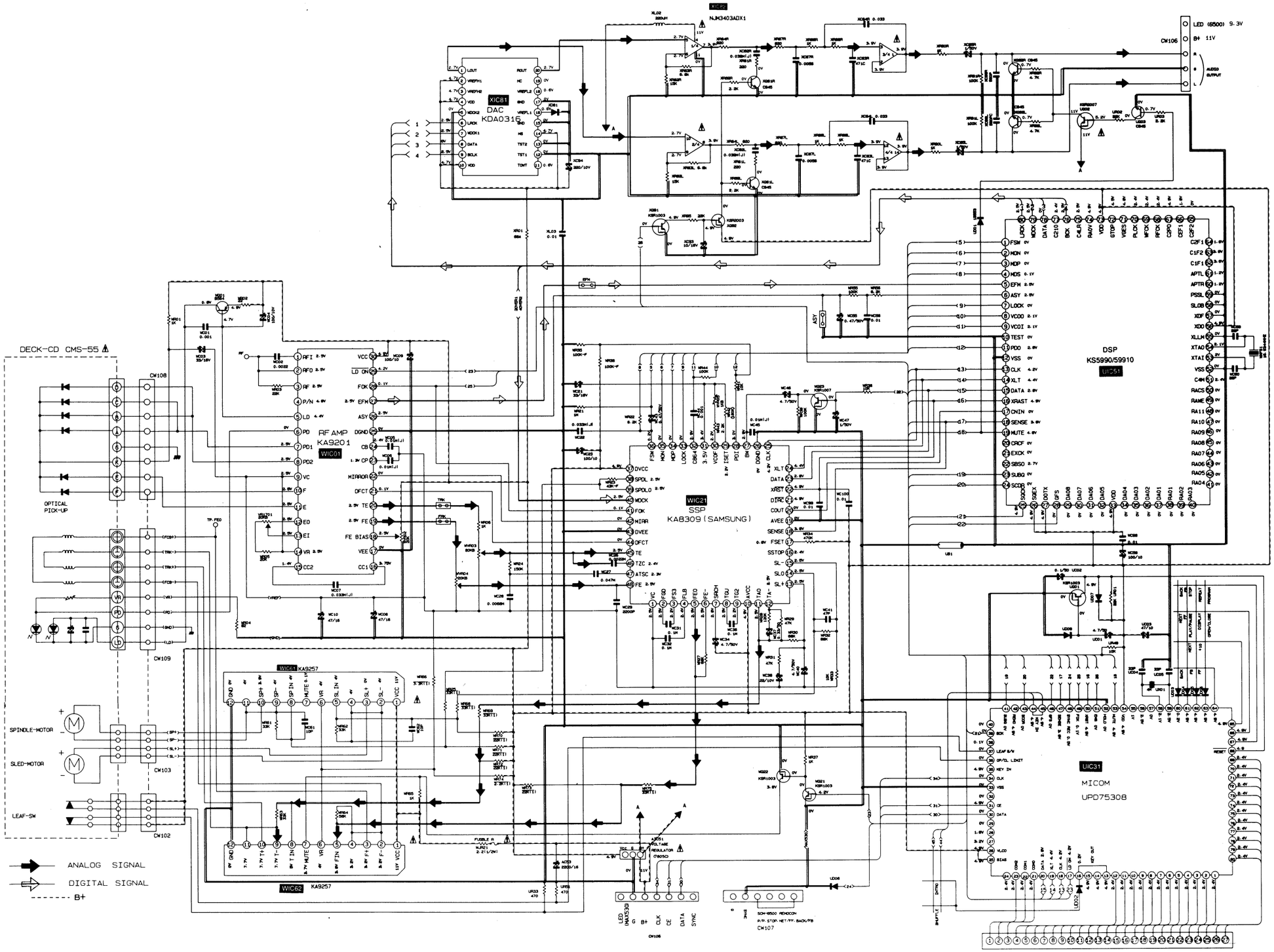
■ SCHEMATIC DIAGRAM

1. MAIN SECTION

1. The unit of all resistors is Ω unless otherwise stated. (K : KΩ , M : MΩ). All resistors are 1/4W or 1/8W unless otherwise stated.
2. The unit of all capacitors is μF unless otherwise stated. (P : PF).
3. The schematic diagram is subject to change upon improvement without prior notice.
4. ⚠ indicates parts for circuit safe guarding purposes. Therefore, when replacing, be sure to use specified parts only.

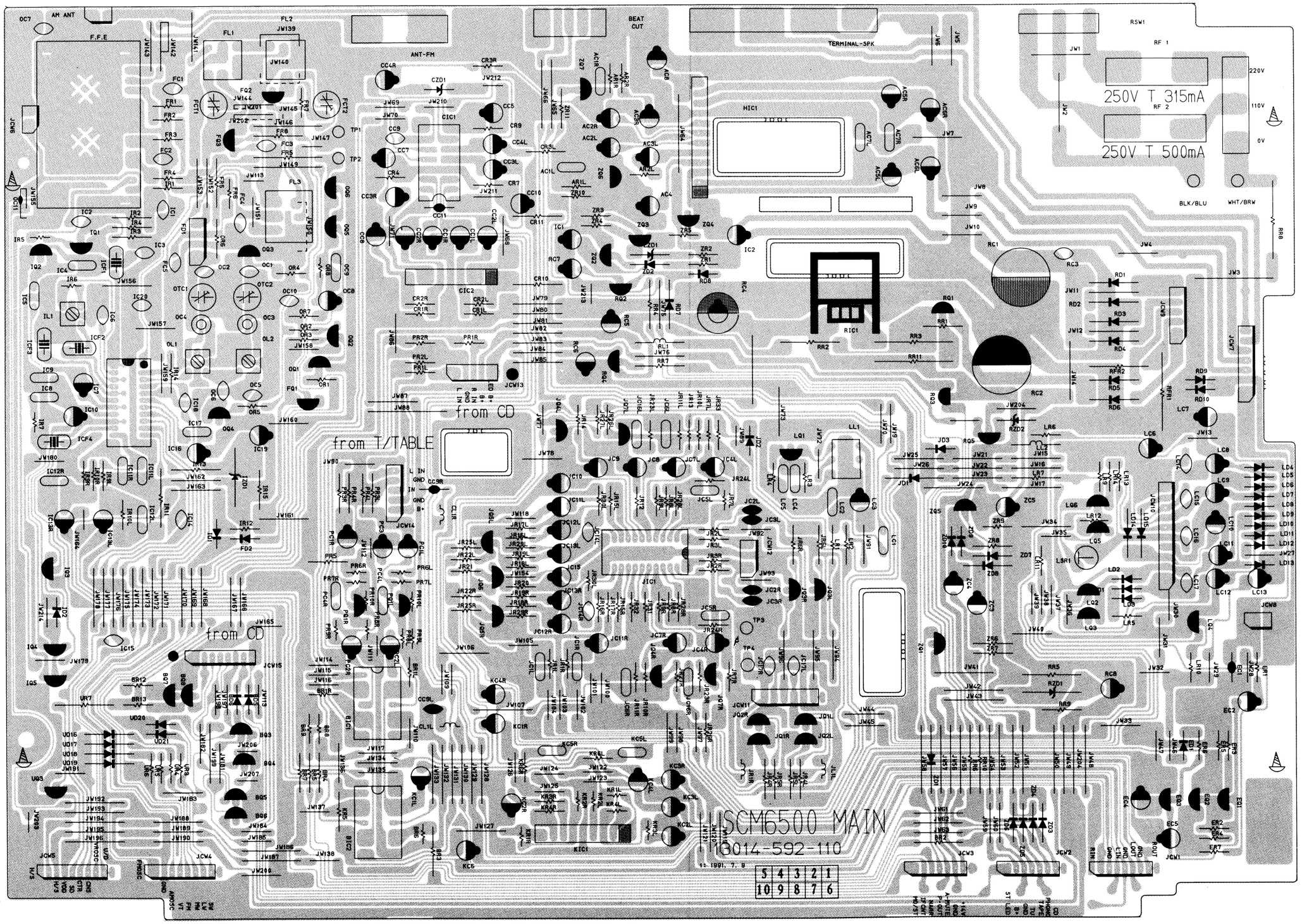


2. CD PLAYER SECTION

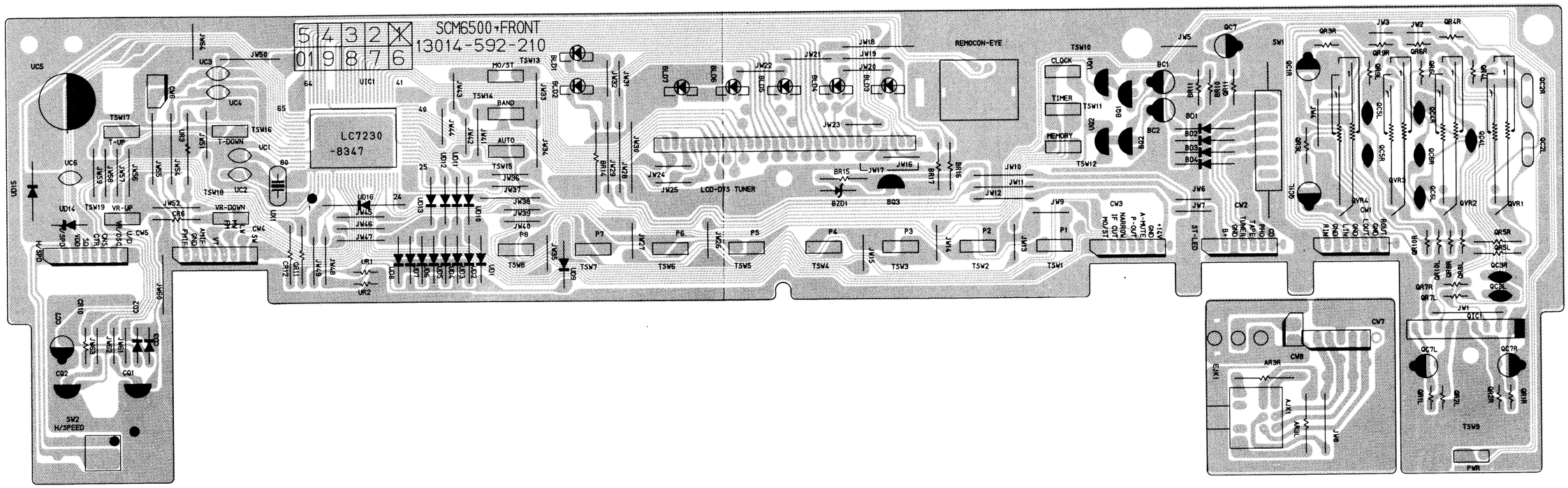


■ PCB PATTERN & MARKING DIAGRAM (PATTERN SIDE)

1. MAIN PCB SECTION

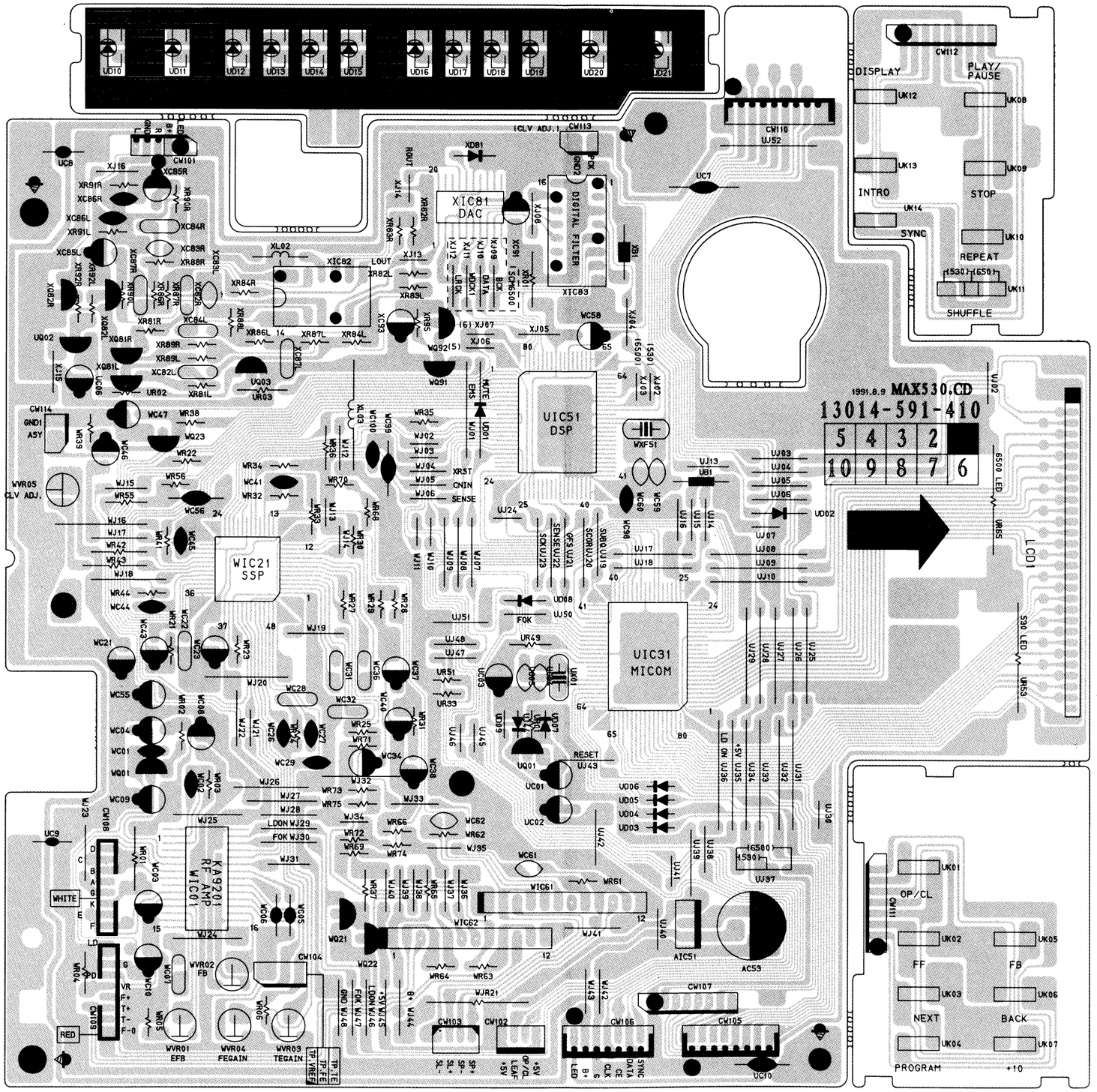


2. FRONT PCB SECTION

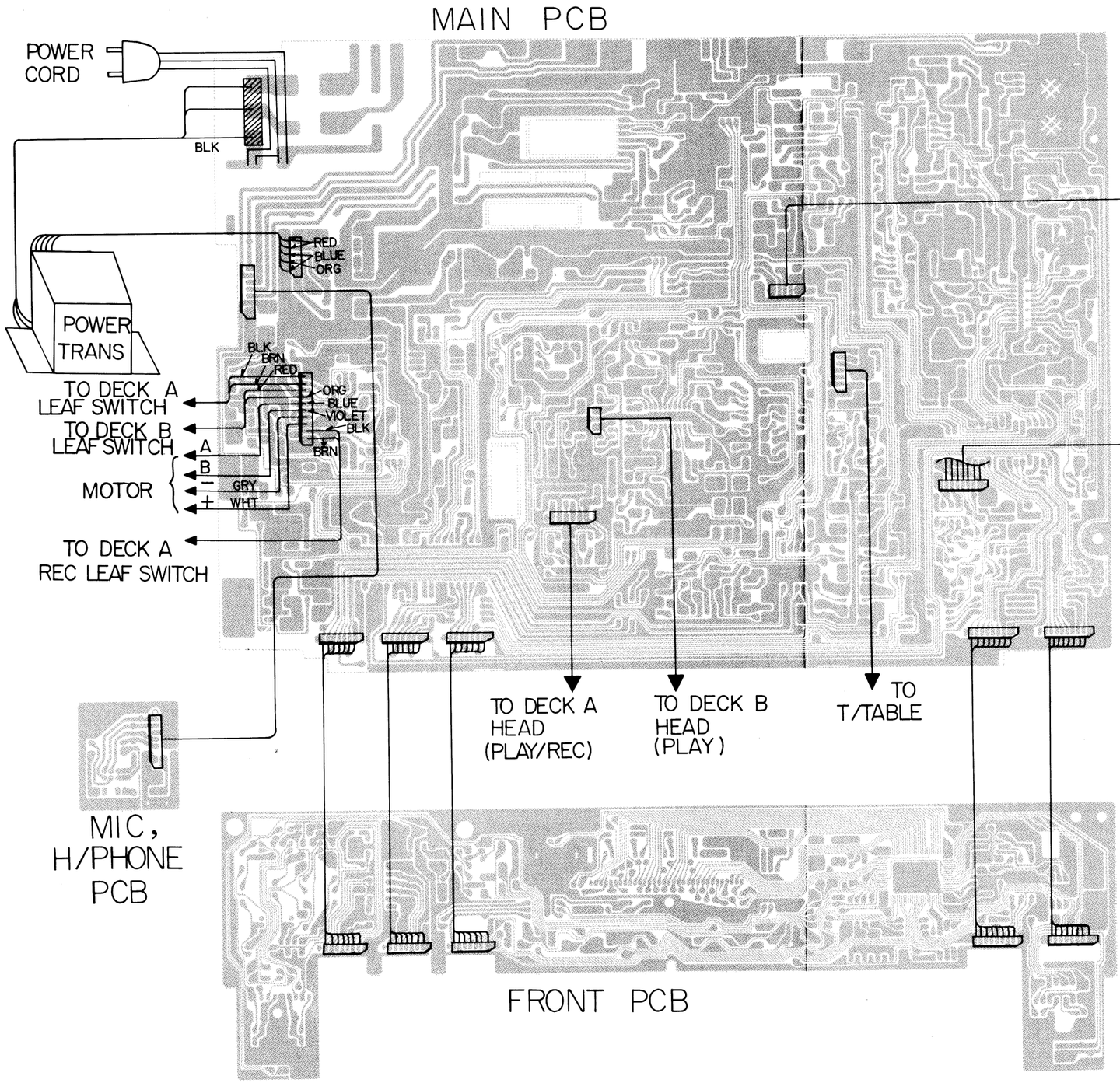


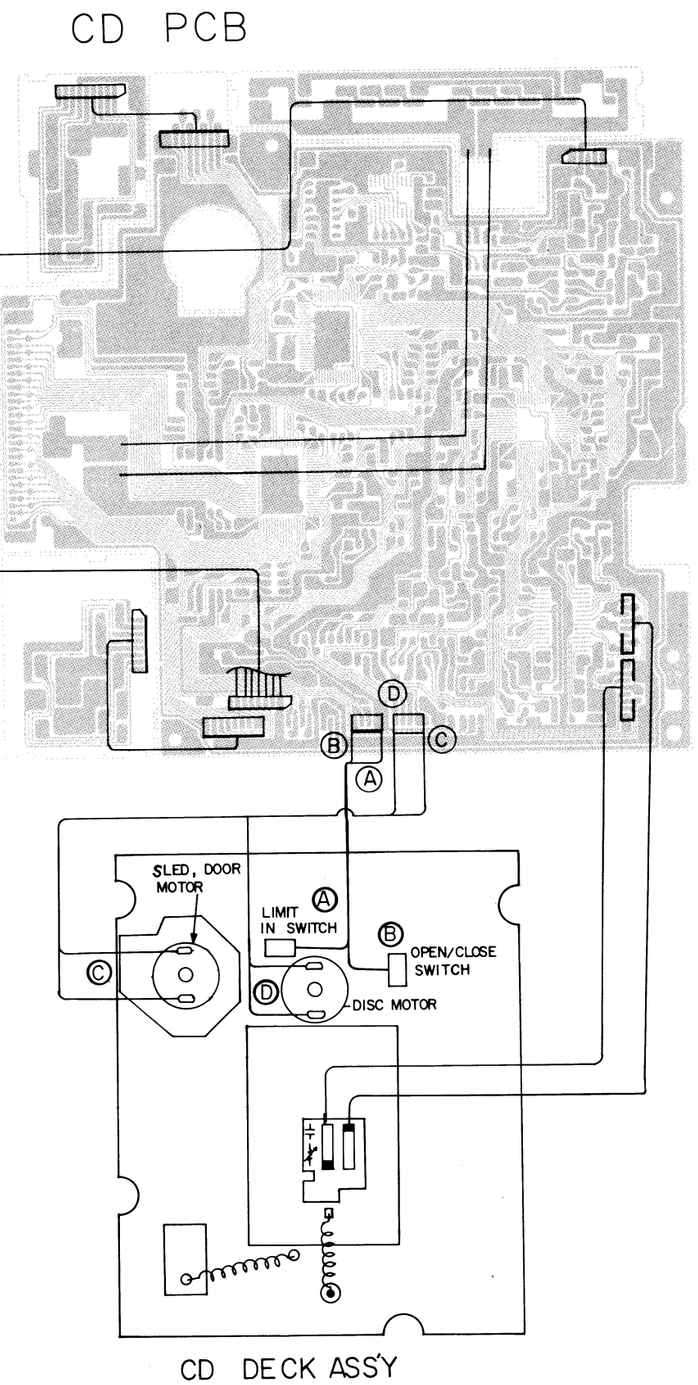
MC-Service

3. CD PCB SECTION



■ WIRING DIAGRAM



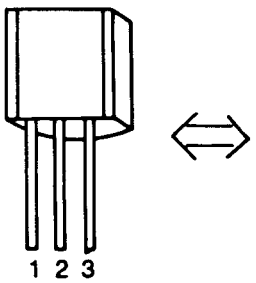


CD DECK ASS'Y
(BOTTOM SIDE)

■ IC & TR INTERNAL DIAGRAM

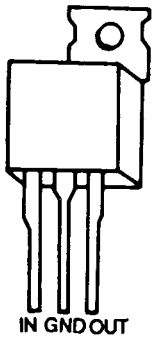
- TR & DIODE

1)

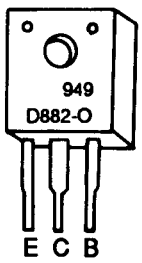


TR	1	2	3
KSR2003, KSR1003, KSR1007 KSC2331, KSR2007, KSA928	E	C	B
KSC945, KSC1008, KSC1222 KSA733, KSC838, KSD471 KSA708, KSB564	E	B	C

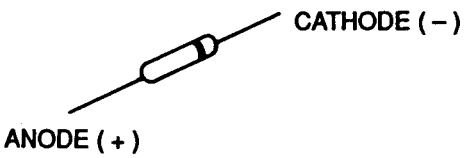
2) MC7805C
MC7812C/MC7812P



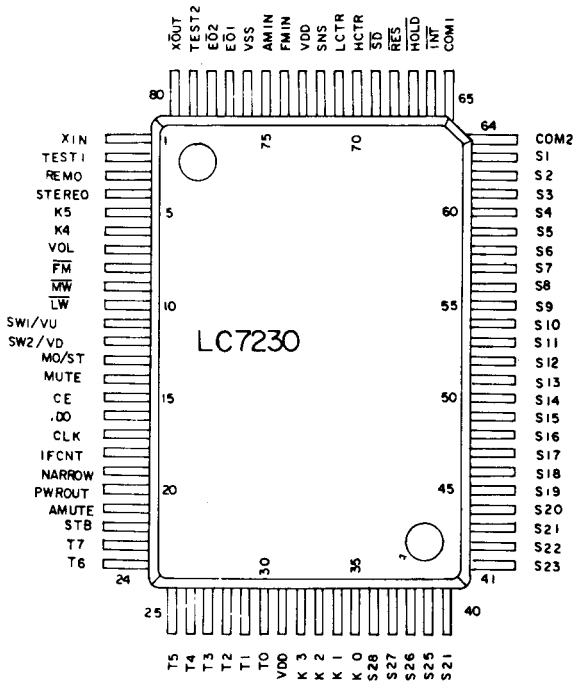
3) KSD882



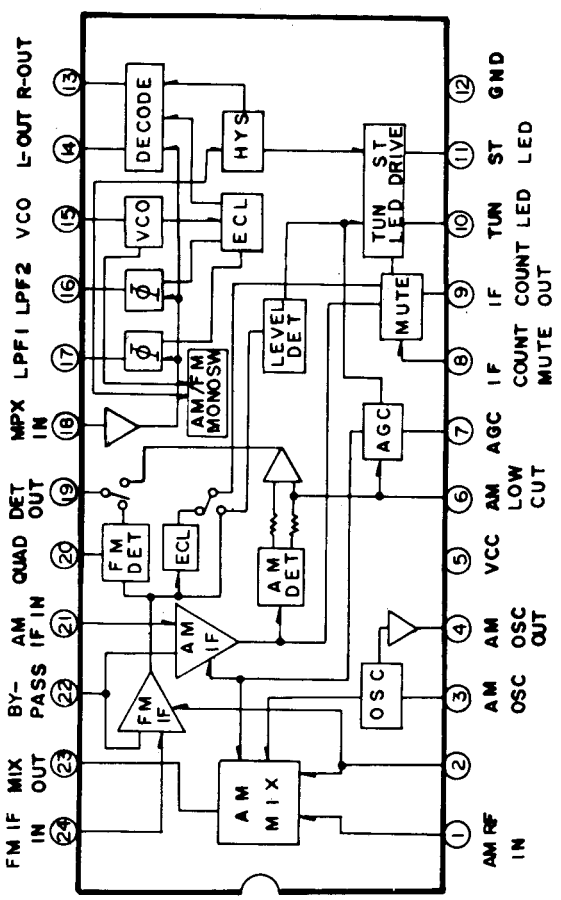
4) IN4148M/1SS53, IN4001, ZENER DIODE



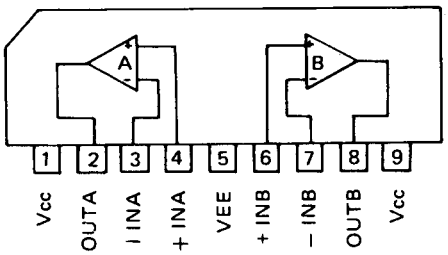
- LC7230-8347 (MICOM) : UIC1



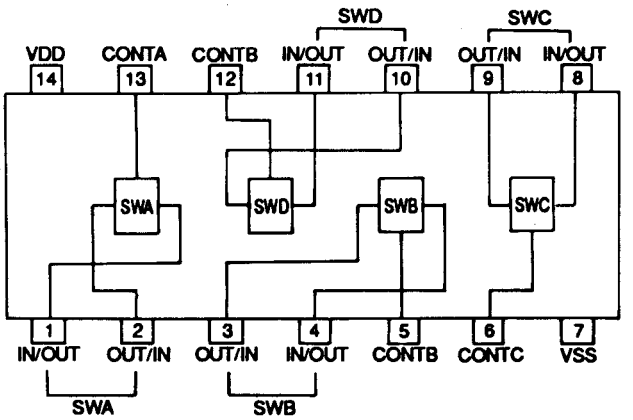
- TA8132N (TUNER IC) : IIC1



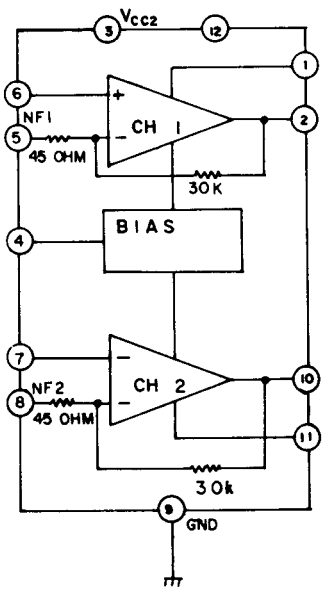
● MC4558S (OP AMP) : KIC1, QIC1, CIC2



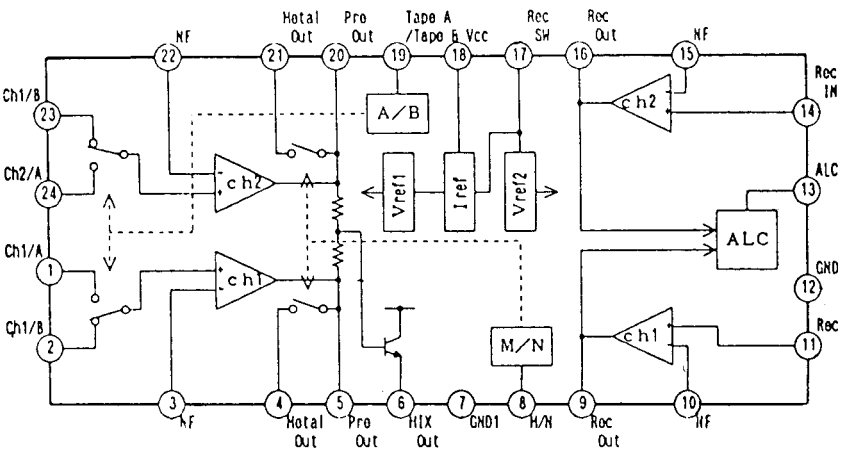
● LC4066 (SWITCH IC) : BIC1, 2



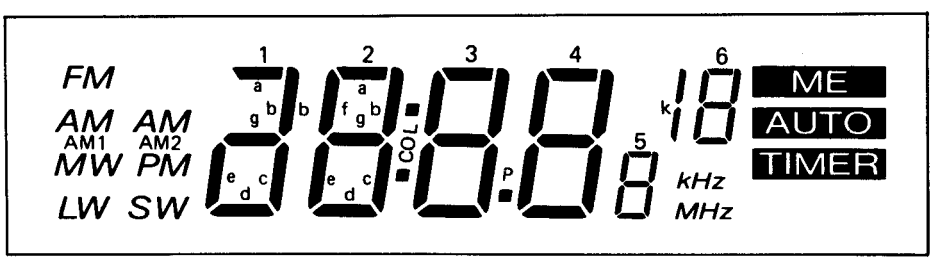
● AICI TA8207K (POWER IC) : AIC1



● TA8189N (PRE/REC AMP) : JIC1

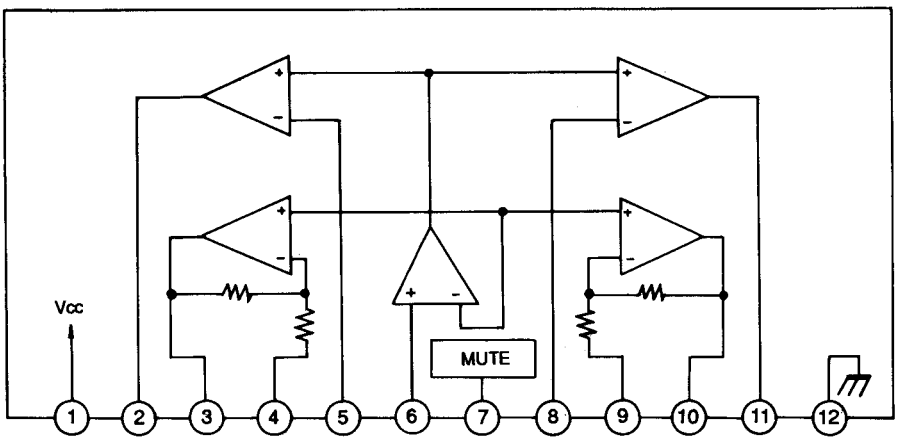


● LE-0605CP (TUNER LCD) : ULCD1

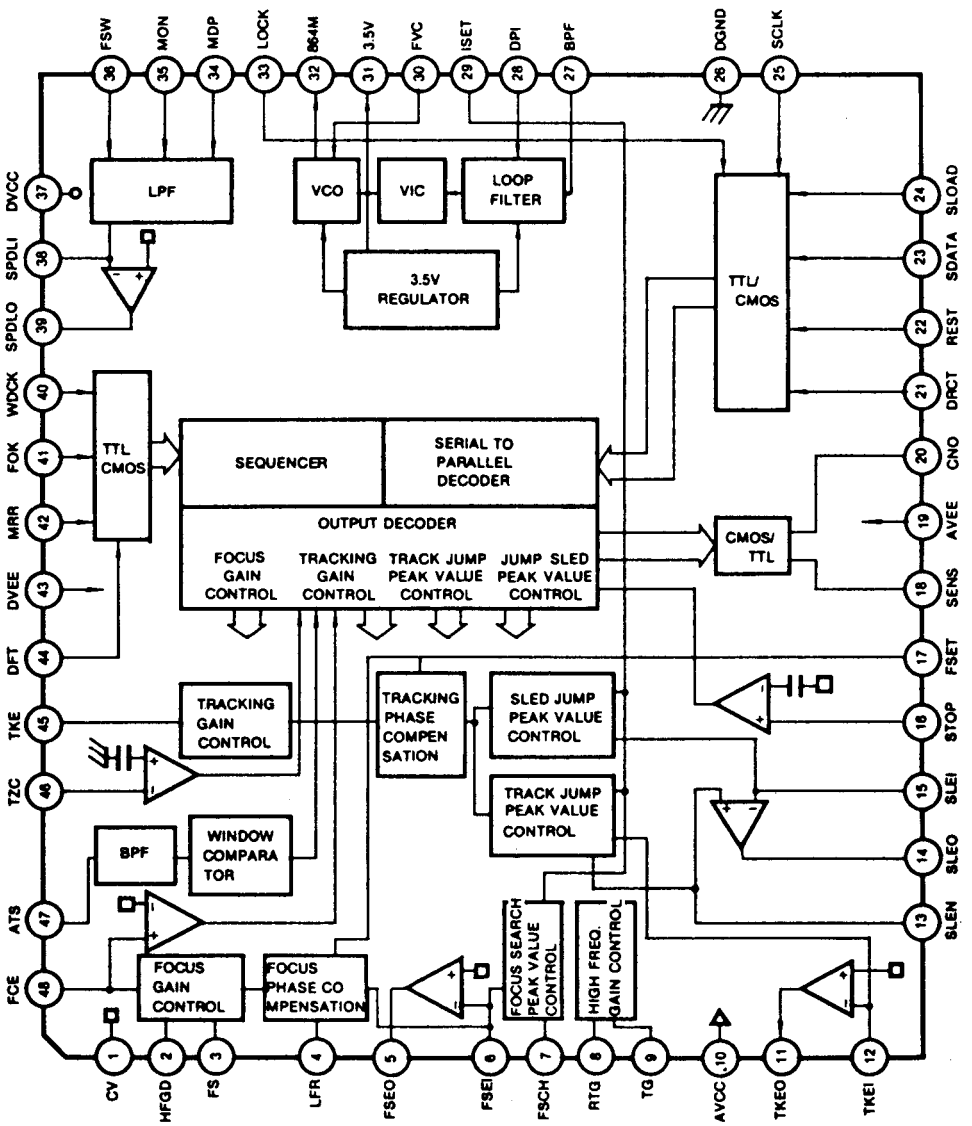


	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
COM1	COM1			AM 1	MW	SW	PM		B 1	C 1	F 2	E 2	D 2	A 2	F 3	E 3
COM2		COM2	FM			LW		AM2	ADEG1	COL	B 2	G 2	C 2		B 3	G 3
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
COM1	D 3	A 3	F 4	E 4	D 4	A 4	G 5	BE 5	KHz	E 6	D 6	TIME-R	A 6	ME	F 6	
COM2	C 3		B 4	G 4	C 4		ACDF 5		MHz P	G 6	C 6	K		AUTO	B 6	

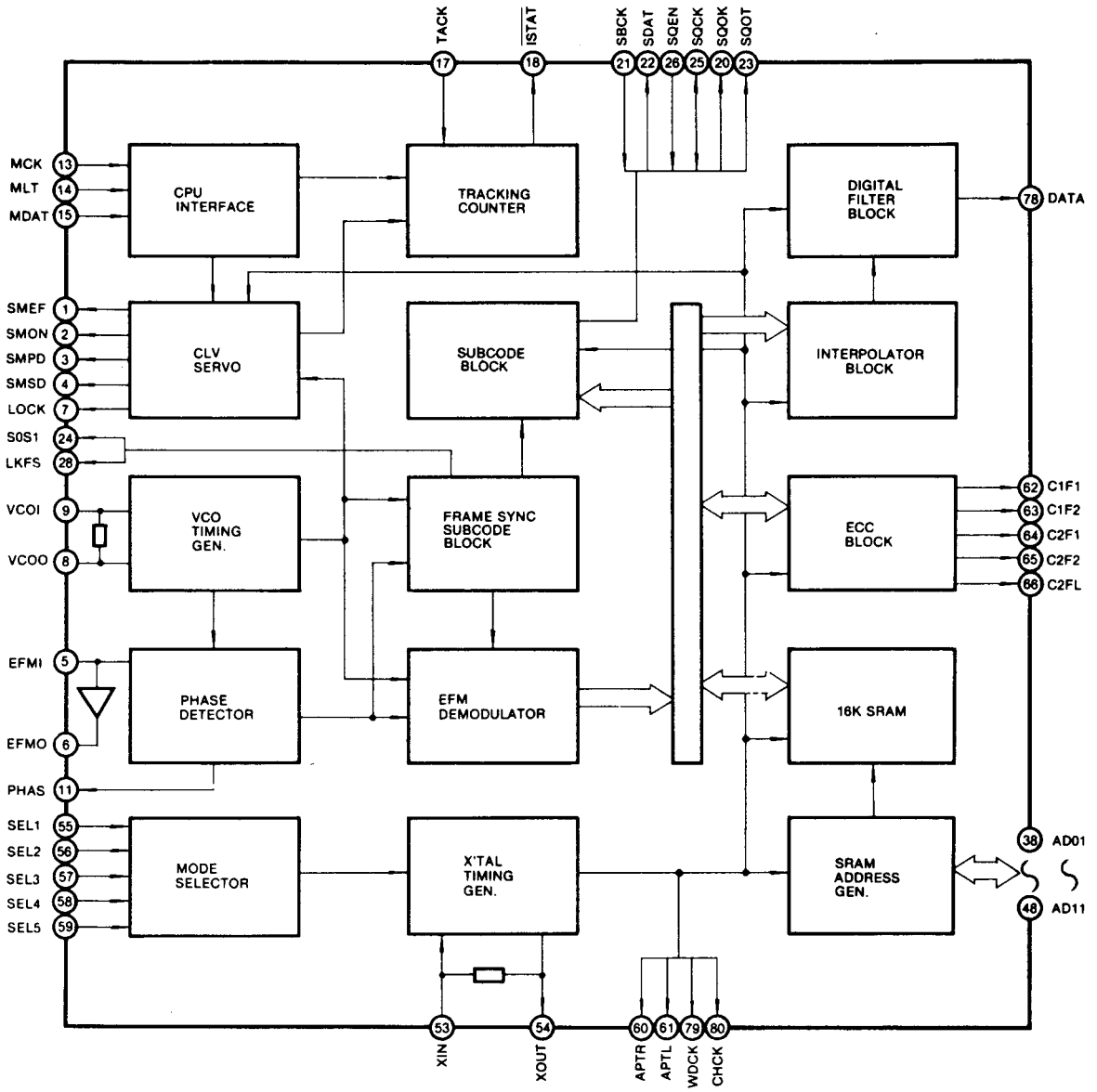
- KA9257 (BTL DRIVE IC) : WIC61, 62



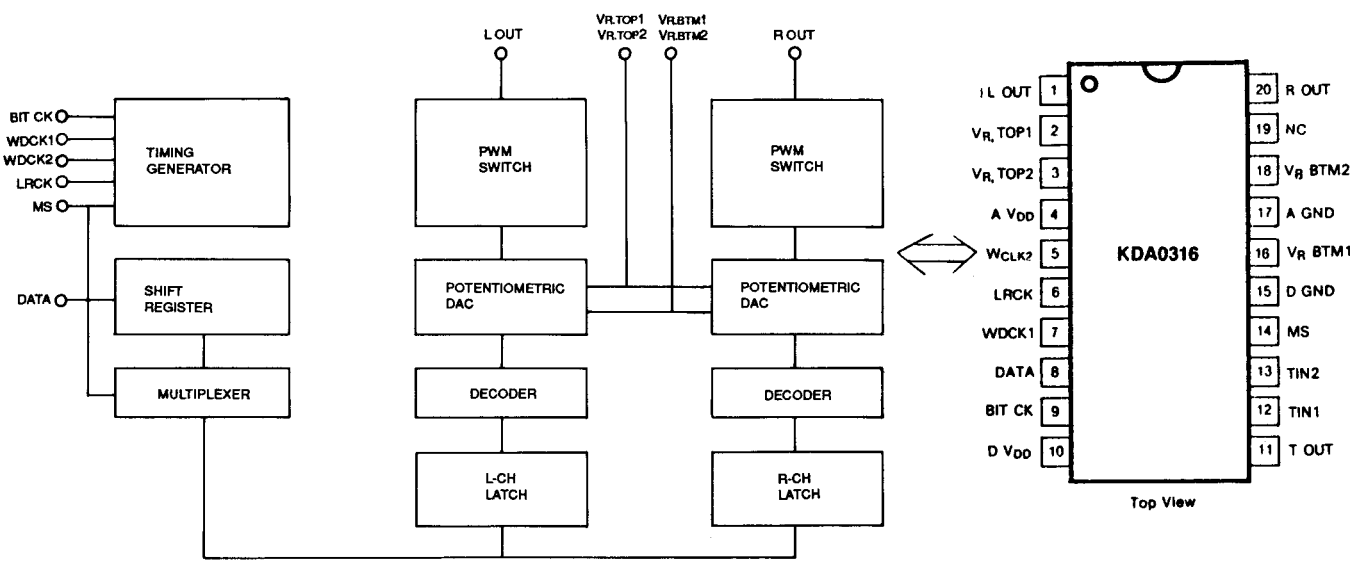
- KA8309 (SSP SERVO SIGNAL PROCESSOR IC) : WIC21



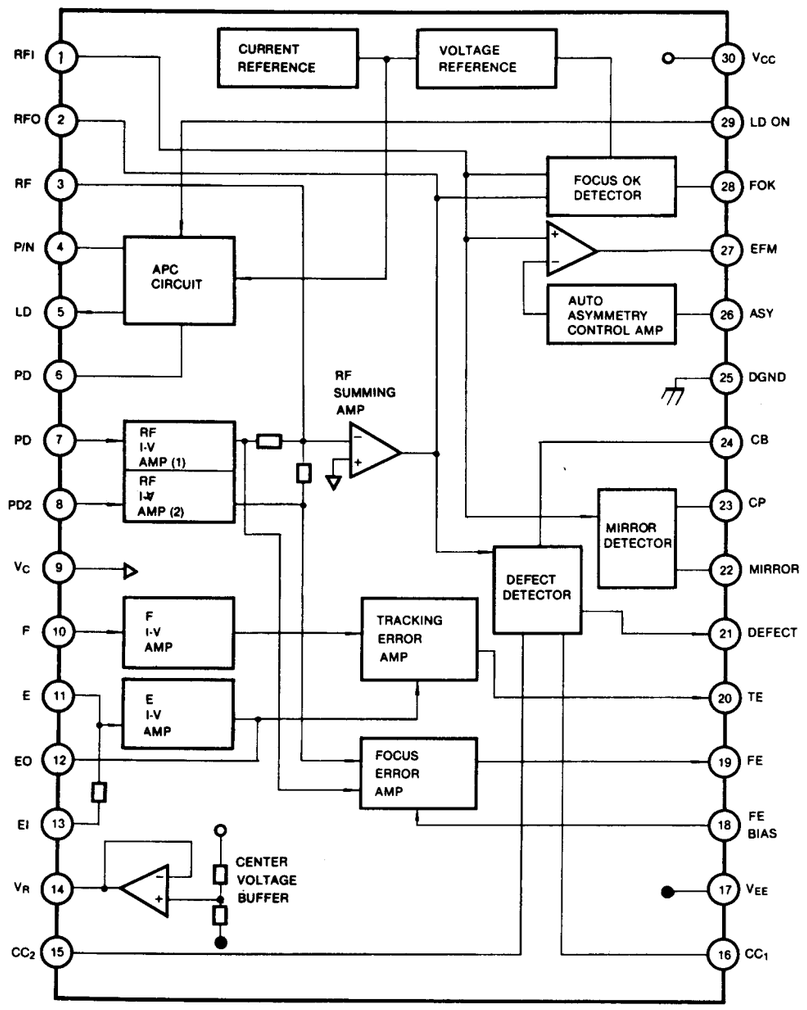
- KS5990/KS59910 (DSP : DIGITAL SIGNAL PROCESSOR IC) : UIC51



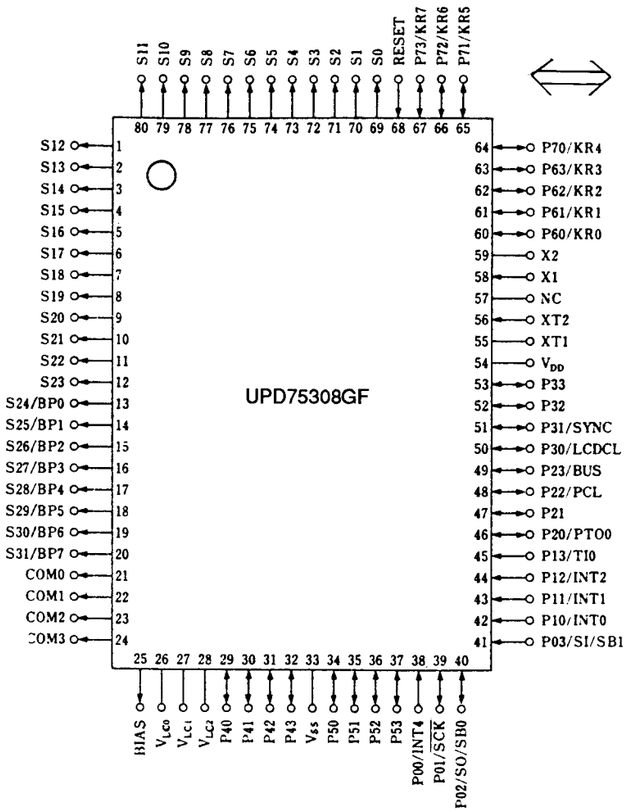
- KDA0316LD (D/A CONVERTOR) : XIC81
  * OPTIONAL



• KA9201 (RF AMP IC) : WIC01

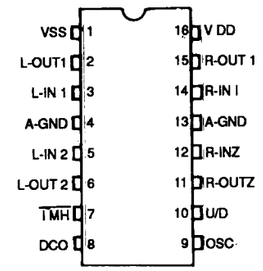


• UPD75308 (MICOM) : UIC31

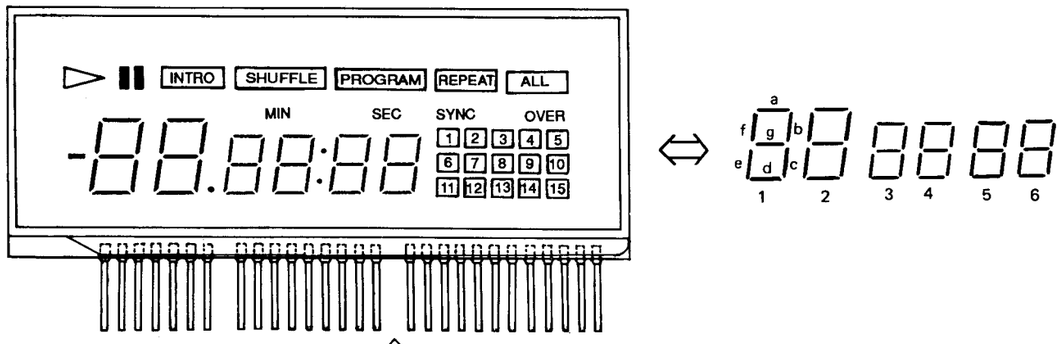


P00-03	: Port 0	S0-31	: Segment Output 0-31
P10-13	: Port 1	COM0-3	: Common Output 0-3
P20-23	: Port 2	VLC0-2	: LCD Power Supply 0-2
P30-33	: Port 3	BIAS	: LCD Power Supply Bias Control
P40-43	: Port 4	LCDCL	: LCD Clock
P50-53	: Port 5	SYNC	: LCD Synchronization
P60-63	: Port 6	T10	: Timer Input 0
P70-73	: Port 7	PTO0	: Programmable Timer Output 0
BP0-7	: Bit Port	BUZ	: Buzzer Clock
KR0-7	: Key Return	PCL	: Programmable Clock
$\overline{SCK}$	: Serial Clock	INT0, 1, 4	: External Vectored Interrupt 0, 1, 4
SI	: Serial Input	INT2	: External Test Interrupt 2
SO	: Serial Output	X1, 2	: Main-system Clock Oscilation 1, 2
SB0, I	: Serial Bus 0, 1	XT1, 2	: Subsystem Clock Oscilation 1, 2
$\overline{RESET}$	: Reset	NC	: Non-connection

• TC9153AP (ELECT. VR IC) : CIC1

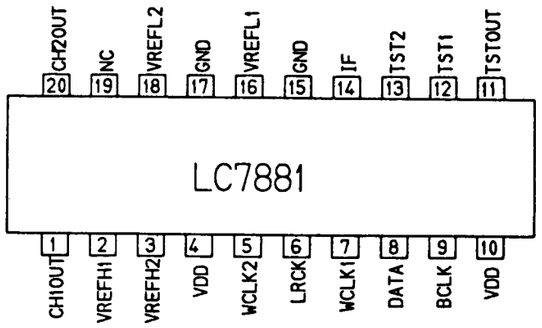


• LE-0647AP (CD LCD) : LCD

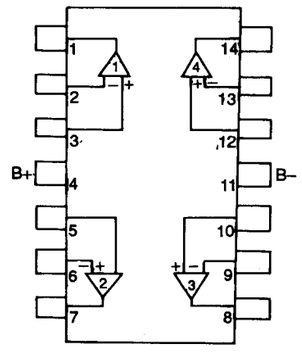


No.	COM. 1	COM. 2	COM. 3	No.	COM. 1	COM. 2	COM. 3	No.	COM. 1	COM. 2	COM. 3
1	COM.1			11	PROGRAM	3f	3e	20	SYNC	6f	6e
2		COM. 2		12	3 a	3g	3d	21	6 a	6g	6d
3			COM. 3	13	MIN	3b	3c	22	OVER	6b	6c
4	INTRO	▷	■■	14	REPEAT	4f	4e	23	1	6	11
5	—	1f	1e	15	4 a	4g	4d	24	2	7	12
6	1 a	1g	1d	16	:	4b	4c	25	3	8	13
7		1b	1c	17	ALL	5f	5e	26	4	9	14
8	SHUFFLE	2f	2e	18	5 a	5g	5d	27	5	10	15
9	2 a	2g	2d	19	SEC	5b	5c	28	N C		
10	•	2b	2c								

• LC7881 (D/A CONVERTOR) : XIC81
* OPTIONAL



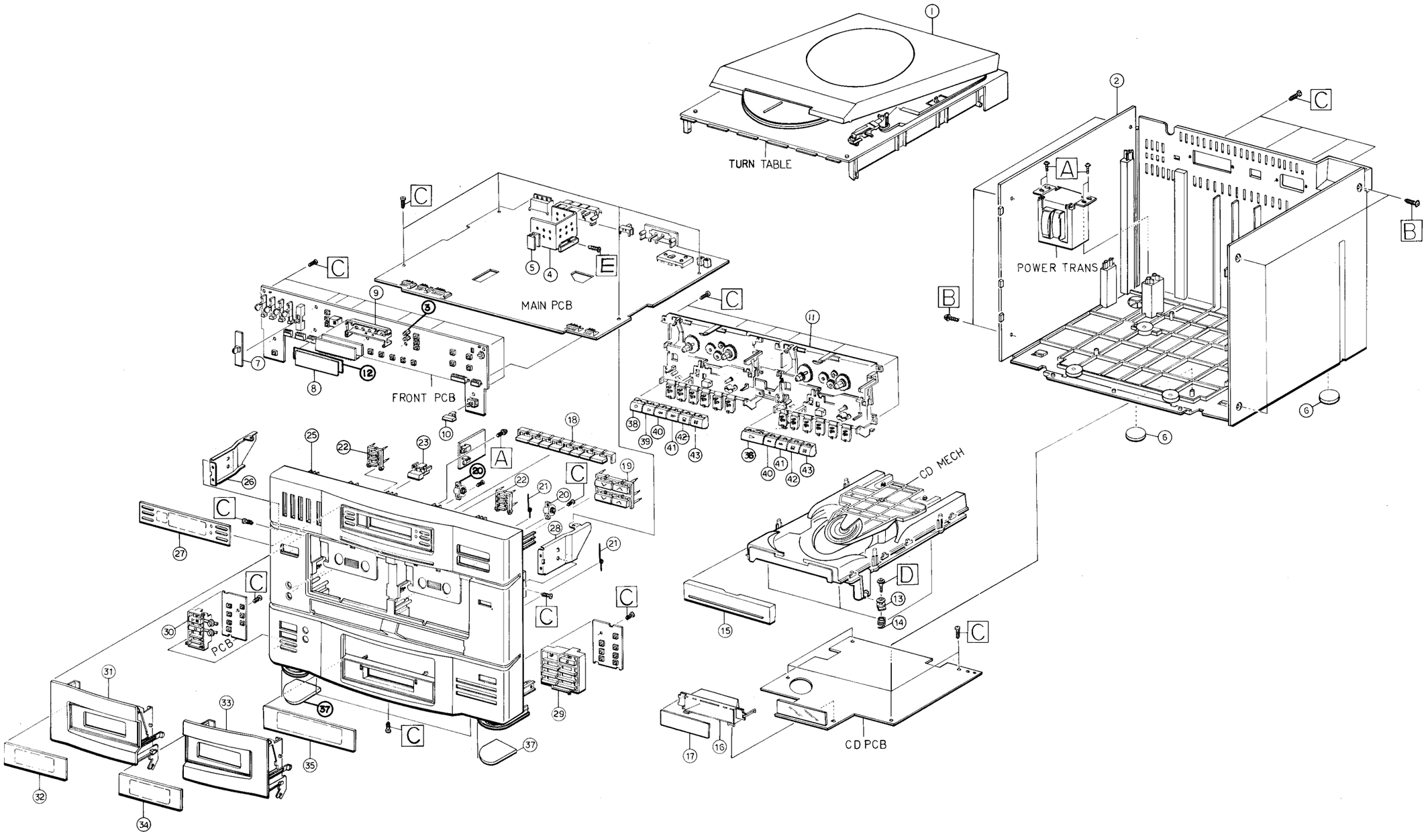
• NJM3403AD (OP AMP) : XIC82



■ EXPLODED VIEW & MECHANICAL PARTS LIST

1. MAIN SECTION

● EXPLODED VIEW

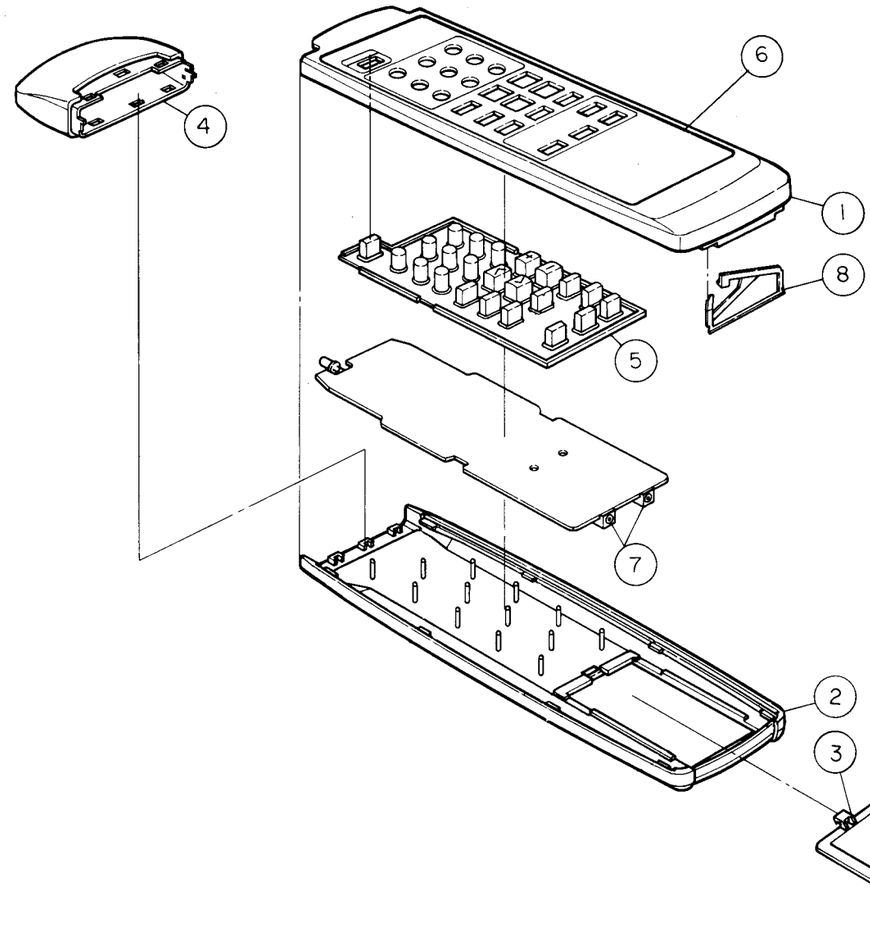


● MECHANICAL PARTS LIST (MAIN SECTION)

No.	CODE No.	DESCRIPTION	SPECIFICATION	Q'TY	REMARK
1	15029-502-920	T/TABLE ASSY	SCM5000/6100(DOM)	1	
2	16001-517-110	CABINET-BOTTOM	MIPS 94HB BLK SCM6	1	
3	16604-521-510	HOLDER-LED	ABS BLK RS1200AR	2	
4	15683-506-710	HEAT-SINK. M	ALS2. 0T BLK ANODIZING	1	
5	15684-509-710	HEAT-SINK IC	AL EXTR BLK 40H. RS17	1	
6	16804-521-710	FOOT-CONTACT	EVA RUBBER	2	
7	17624-643-810	KNOB-FUNCTION	ABS 94HB BLK SCM650	1	
8	17654-571-710	FILTER-TUNER	PC 0. 5T MILKY WHT	1	
9	16602-503-110	HOLDER-LED. T	ABS WHT SCM7550	1	
10	17624-622-010	KNOB-PUSH	ABS 94HB BLK SCM6900	1	
11	14929-104-961	DECK TAPE	ADR1506FW	1	
12	17654-574-010	FILTER-TUNER. B	DIAMET PE 0. 125T#5	1	
13	16804-517-820	RUBBER-DECK	BUTYL SCM7550	4	
14	16674-570-320	SPRING-DECK(B)	STSW#27	4	
15	17643-531-701	DOOR-CD	ABS 94HB SCM6500/DOM. EXP	1	
16	16603-513-310	HOLDER-CD	ABS 94HB WHT. SCM6500	1	
17	17654-574-910	FILTER-CD	PC0. 5T WHT	1	
18	17623-593-110	KNOB-PRESET	ABS 94HB BLK SCM6500	1	
19	17623-593-010	KNOB-UP. DOWN	ABS 94HB BLK SCM6500	1	
20	15214-506-011	DAMPER-ASSY	POM PD790	2	
21	16674-568-910	SPRING-DOOR	SUS PI0. 9	2	
22	17624-643-710	KNOB-BAND	ABS 94HB BLK SCM6500	2	
23	17622-502-310	KNOB-POWER	ABS 94HB BLK SCM6900	1	
25	16000-537-701	PANEL-FRONT	MIPS 94HB BLK. SCM6500	1	
26	16624-581-210	BKT-SIDE. L	SECC 0. 8T SCM6500	1	
27	17654-572-801	WINDOW-TUNER	PVC SHEET 1. 0T SCM65	1	
28	16624-581-310	BKT-SIDE. R	SECC 0. 8T SCM6500	1	
29	17623-593-510	KNOB-CD. R	ABS 94HB BLK SCM6500	1	
30	17623-593-410	KNOB-CD. L	ABS 94HB BLK SCM6500	1	
31	17641-502-601	DOOR-CST. L	ABS 94HB BLK. SCM6500/D	1	
32	17654-572-901	WINDOW-DECK. L	PVC SHEET 1. 0T SCM6	1	
33	17641-502-701	DOOR-CST. R	ABS 94HB BLK. SCM6500/D	1	
34	17654-573-001	WINDOW-DECK. R	PVC SHEET 1. 0T SCM6	1	
35	17654-573-101	WINDOW-CD	PVC SHEET 1. 0T SCM6500	1	
36	17623-574-610	KNOB-PLAY. L	ABS 94HB RS750D	1	
37	16174-503-510	CUSHION-FOOT	RUBBER SPONGE BLK	2	
38	17623-574-510	KNOB-REC	ABS 94HB RS750	1	
39	17623-574-410	KNOB-PLAY. S	ABS 94HB	1	
40	17623-574-420	KNOB-REW	ABS 94HB RS750	2	
41	17623-574-430	KNOB-F. F	ABS 94HB RS750	2	
42	17623-574-440	KNOB-ST/EJ	ABS 94HB RS750	2	
43	17623-574-530	KNOB-PAUSE	ABS 94HB RS750	2	
A	17558-230-101	SCREW TAP BH SPEC	2S-3X10 FEFZY	6	
B	17458-230-141	SCREW-TAP TITE BH	B-3X14FZY	6	
C	17458-230-101	SCREW-TAP TITEBH	2S-3X10FE FZY	35	
D	17094-504-930	SCREW-MECHA	TAP 2S-3X10	4	
E	17458-130-081	SCREW-TAP TITE. BH	B-3X8 FE FZY	4	

2. REMOTE CONTROL SECTION

● EXPLODED VIEW

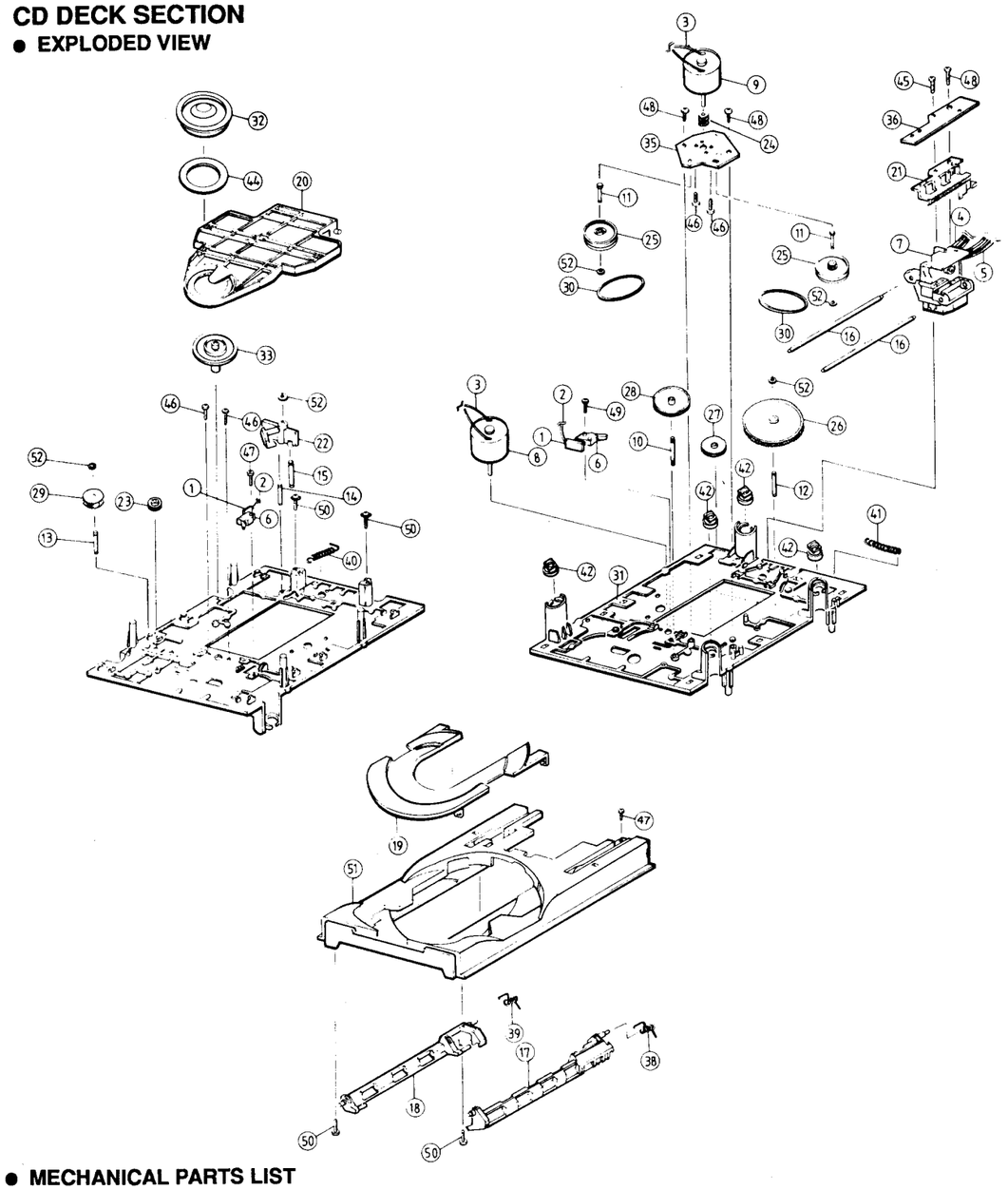


● MECHANICAL PARTS LIST

No.	CODE No.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
	14909-502-110	REMOCON ASSY ; SCM6500 S/S		ASS'Y
1	16002-517-510	CABINET-TOP ; ABS BLK	1	
2	16002-517-610	CABINET-BOTTOM ; ABS BLK	1	
3	16034-505-010	COVER-BATTERY ; ABS BLK	1	
4	17642-540-010	FILTER-REMOCON ; PC BLUE	1	
5	16153-502-050	RUBBER-KEY ; BUBBER	1	
6	16134-510-570	COVER-REMOCON ; PVC CLEAR EMBO	1	
7	16404-522-510	SPRING-BATTER, A ; PBR2-1/4H 0.3T	2	
8	16403-500-110	SPRING-BATTER, B ; SUS 302 0.4T	1	

3. CD DECK SECTION

● EXPLODED VIEW



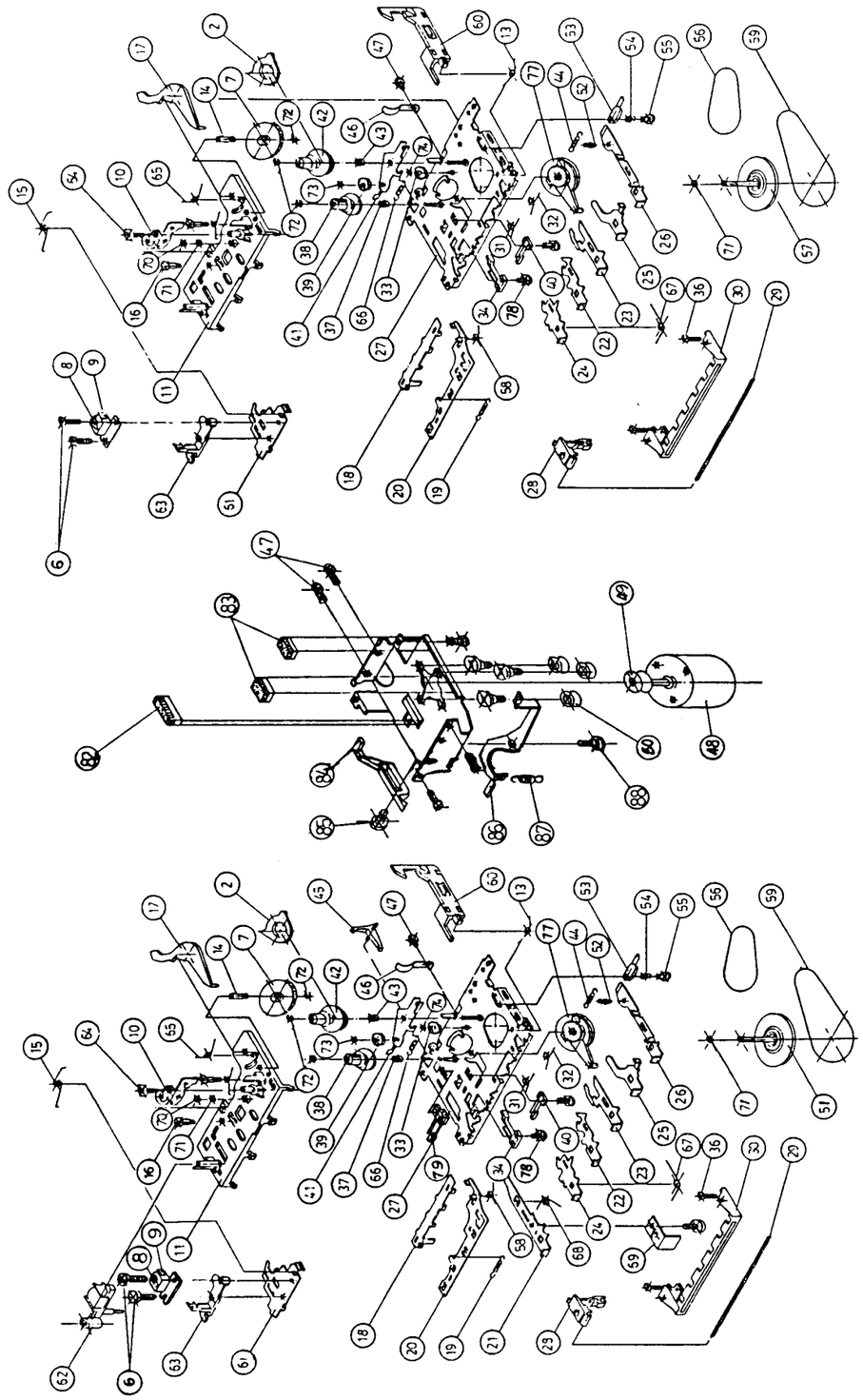
● MECHANICAL PARTS LIST

No.	CODE No.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
	14929-421-020	DECK-CD(ASSY) ; CMS-55/M	1	
1	13014-582-500	PCB-MICRO SW ; IVO	2	
2	13029-041-130	CONNECTOR ; 4PIN(SW)	1	
3	13029-041-230	CONNECTOR ; 4PIN(MOTOR)	1	
4	13052-901-040	CONNECTOR ; 8PIN(SHIELD)	1	
5	13052-901-041	CONNECTOR-WIRE ; PHR-08/PHR-08 2851 # 30 8P 200	1	
6	13579-901-010	MICRO-S/W ; SSCTL1217A	2	
7	14239-101-110	SAMSUNG OPTICAL HEAD ; SOH89T1	1	
8	14769-057-240	MOTOR-SPINDLE ; RF-310T(SHAFT 18.9)	1	
9	14769-057-250	MOTOR-FEED ; RF-310T(SHAFT 10.9)	1	
10	15104-531-010	SHAFT-GEAR(C) ; SUM24L(SERRATION)SCM7550	1	
11	15104-531-110	SHAFT-GEAR(D) ; SUM24L SCM7550L	2	
12	15104-531-210	SHAFT-GEAR(A) ; SUM24L SCM7550L	1	
13	15104-531-220	SHAFT-GEAR(B) ; SUM24L SCM7550L	1	
14	15104-531-310	SHAFT-LEVER(A) ; SUM24L SCM7550	1	
15	15104-531-410	SHAFT-LEVER(B) ; SUM24L SCM7550	1	
16	15104-531-510	SHAFT-PU ; SUS 420J2 SCM7550	2	
17	15252-501-110	LEVER-LIFTER(R) ; P.B.T G15% SCM7550	1	
18	15252-501-210	LEVER-LIFTER(L) ; P.B.T G15% SCM7550	1	
19	15252-501-310	LIFTER-DISC ; ABS BLK SCM7550	1	
20	15252-501-410	COVER-DISC ; P.B.T G15% SCM7550	1	
21	15253-503-310	GUIDE-PU ; P.O.M SCM7550	1	
22	15253-503-410	LEVER-MAIN ; P.O.M SCM7550	1	
23	15254-509-110	GEAR-DOOR SLIDING(A) ; P.A NTR SCM7550	1	
24	15254-513-610	GEAR-MOTOR ; P.O.M SCM7550	1	
25	15254-513-710	GEAR-PU(A) ; P.O.M SCM7550	2	
26	15254-513-810	GEAR-PU(B) ; P.O.M SCM7550	1	
27	15254-513-910	GEAR-PU(C) ; P.O.M SCM7550	1	
28	15254-514-010	GEAR-DOOR(A) ; P.O.M SCM7550	1	
29	15254-514-310	GEAR-DOOR(C) ; P.O.M SCM7550	1	
30	15274-501-520	BELT-MOTOR ; NEOPLENE 1.2T SCM7550	2	
31	16021-504-710	BRKT MAIN(M) ; E. G T1.6+POM SCM7550	1	
32	16604-538-310	PLATE CHUCK ; P.O.M SCM7550	1	
33	16604-538-410	TURN-TABLE ; P.C G20% SCM7550	1	
35	16624-571-410	BRKT-MOTOR ; EG 1.2T SCM7550	1	
36	16624-571-910	BRKT-P/U ; SECC 1.0T SCM7550	1	
38	16674-560-510	SPRING-LIFTER R ; STSW #27 SCM7550	1	
39	16674-560-610	SPRING-LIFTER L ; STSW #27 SCM7550	1	
40	16674-560-710	SPRING-COVER ; STSW #27 SCM7550	1	
41	16674-560-810	SPRING-LEVER ; STSW #27 SCM7550	1	
42	16804-517-820	RUBBER-DECK ; BUTYL SCM7550	4	
44	16844-520-210	SHEET-CHUCK ; HYMERON T0.5 SCM7550	1	
45	17008-120-063	SCREW-PH ; +M2X6 FE FZB DT-850	1	
46	17098-120-032	SCREW-BH ; +M2X3 FE FZW	4	
47	17108-520-063	SCREW-TAP PH ; 2S-2X6 FE FZB	1	
48	17148-526-081	SCREW-TAP, RH ; 2S-2.6X8 FE FZY	3	
49	17158-220-103	SCREW-TAP, BH ; 2-2X10 FE FZB	2	
50	17558-230-081	SCREW-TAP TITE SPEC ; S-3 X 8FZY	4	
51	17641-500-810	DOOR-DISC ; ABS BLK SCM550	1	
52	18314-500-810	RING-O ; POLY SLIDER PI1.2 SCM7550	5	

* Parts which are not discribed in the CD DECK list are not serviceable.
If you need any other parts except those described, apply CD DECK assembly.

4. CASSETTE DECK SECTION

● EXPLODED VIEW



● PARTS LIST

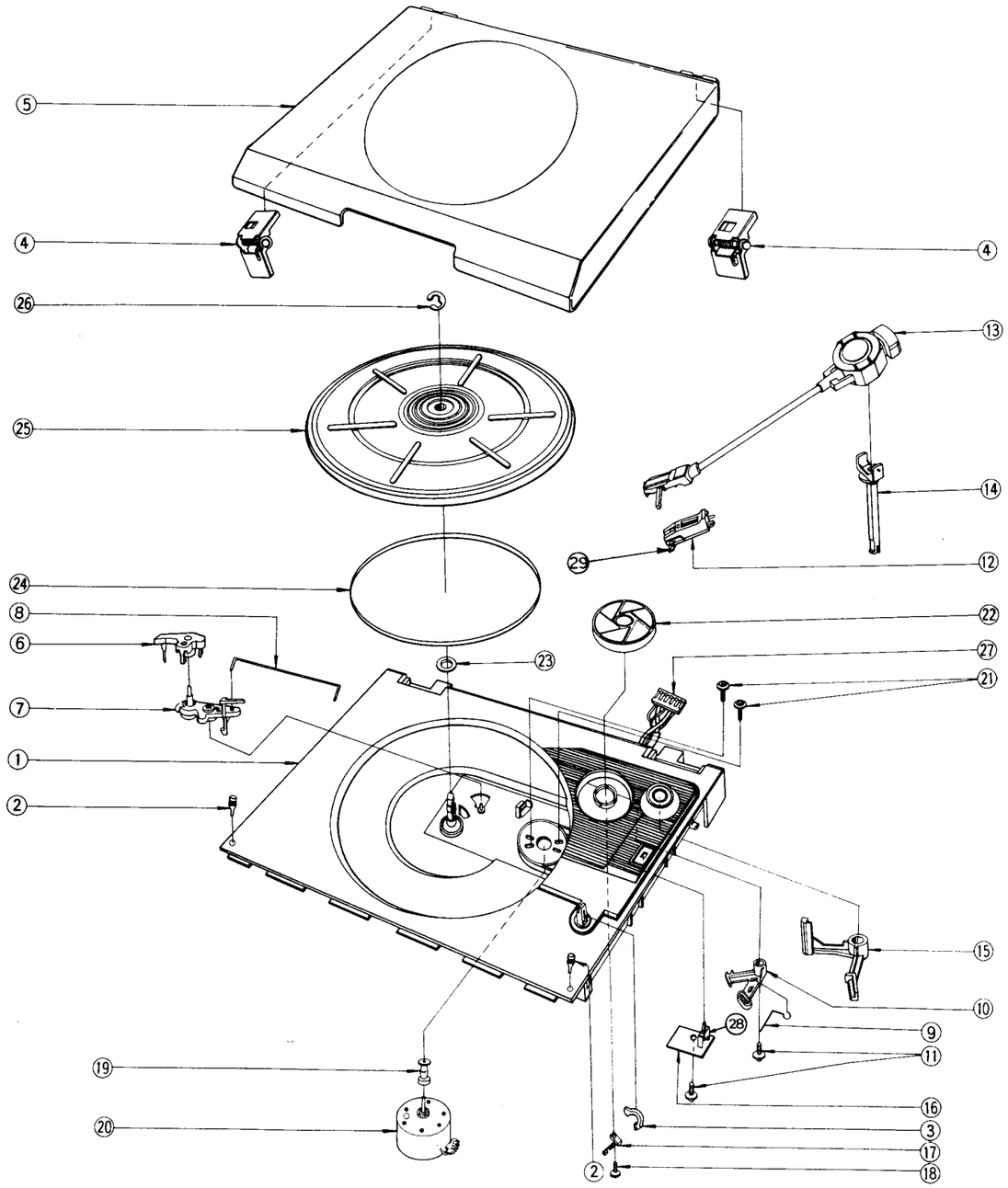
<CASSETTE DECK>

No.	CODE No.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
	14929-104-961	TAPE DECK ; ADR1506FW		
2	10000-607-102	SENSOR REEL ; 1153-00080AA	2	
7	10000-607-107	GEAR CAN ; 11128-0391AA	2	
9	10000-523-008	RP HEAD ; MS 15R-AA2N1	2	
10	10000-607-110	ASS'Y PINCH ARM ; ADR15-006	2	
17	10000-607-117	ARM SENSOR ; 11102-00530AA	2	
28	10000-607-128	KEY KNOB ; 11133-00010AA	12	
33	10000-607-133	GEAR FF ; 11128-00080AA	2	
34	10000-607-134	SW LEAF (MAIN) ; MSW2526GNBKCV	2	
38	10000-607-138	REEL S ASS'Y ; ADR15-001	2	
39	10000-607-139	GEAR ROLLER-T ; 11128-00050AA	2	
40	10000-607-140	SW LEAF (REC) ; LSA1119EN	1	
42	10000-607-142	REEL T ASS'Y ; ADR15-002	2	
45	10000-607-145	LEVER REC SAFETY ; 11134-01000AA	1	
46	10000-607-146	SP PACK ; 51299-02506XC	2	
48	10000-502-020	MOTOR ; EG530 YD2B	1	
49	10000-607-149	PULLEY Y MOTOR ; 11145-00450AA	1	
51	10000-607-151	FLY WHEEL ASS'Y-S ; ADR15-003	1	
53	10000-607-153	CAM PAUSE LOCK ; 11116-00010AA	2	
55	10000-607-155	CAP ; 11117-00020AA	2	
56	10000-607-156	BELT SUB ; 34.7PI x 1.0T	2	
57	10000-607-157	FLY WHEEL ASS'Y-D ; ADR15-004	1	
59	10000-607-159	BELT MAIN ; 59.7PI x 1.0T	2	
60	10000-607-160	LEVER EJECT (F) ; 11134-01220AA	2	
62	10000-607-162	ARM MAGNETIC ; 11102-00520AA	1	
63	10000-607-163	BASE HEAD-M ; 11105-00030AA	2	
65	10000-607-165	SP PAUSE SAFETY ; 51263-02026	2	
77	10000-607-177	ARM F.R ASS'Y ; ADR15-005	2	
84	10000-607-184	LEVER RELEASE ; 11134-01240AA	1	
86	10000-607-186	LEVER SYNCRO ; 11134-01280AA	1	

* Parts which are not discribed in the CASSETTE DECK list are not serviceable.
If you need any other parts except those described, apply CASSETTE DECK assembly.

5. TURN TABLE SECTION

● **EXPLODED VIEW**



● **MECHANICAL PARTS LIST**

LOCATION No.	CODE No.	DESCRIPTION	SPECIFICATION	Q'TY	REMARK
	15029-502-920	T/TABLE ASSY	SMC5000-SCM6100 (DOM)	1	
1	10000-451-001	CABINET-TOP	PM00010, M13000 TV	1	
3	10000-451-003	LOCKER-ARM	PM40230, ACETAL	1	
4	10000-451-004	HINGE ASS'Y	PA40091	2	
5	10000-451-005	DUST COVER	PM20370, M13000TV	1	
6	10000-451-006	PLATE-CLUTCH	PM40211, ACETAL	1	
7	10000-451-007	GUIDE-CLUTCH	PM40221. ACETAL	1	
8	10000-451-008	LINK-ACTUATING	PZ40171, STS	1	
9	10000-451-009	SPRING-ADJUST	PZ40162, STS	1	
10	10000-451-010	LEVER-SWITCH	PM40051, ACETAL	1	
12	10000-451-012	CARTRIDGE	CP-405-30	1	
13	10000-451-013	TONE ARM ASS'Y	PM20101, ABS	1	
14	10000-451-014	HOLDER-ARM	PM40730, ACETAL	1	
15	10000-451-015	FEED ARM	PM30151, ACETAL	1	
17	10000-451-017	SWITCH-LEAF	LSB61123A3	1	
19	10000-451-019	PULLEY-MOTOR	PL40170, MBsBDI	1	
20	10000-451-020	MOTOR	SHR2R6I	1	
22	10000-451-022	ADAPTER-EP	PM40030, ABS	1	
23	10000-451-023	SPACER	ø 7.2 x ø 15 x T0.5, PE	1	
24	10000-451-024	BELT	PP4029, RC-WRT	1	
25	10000-451-025	PLATTER	PM20110, M13000TV	1	
26	10000-451-026	E-RING	E-6	1	
27	10000-451-027	CONNECTOR-5P	SC25-05HG	1	
28	10000-451-028	SLIDE SWITCH	DSS-1123	1	
29	10000-451-029	STYLUS	CP-385-10	1	

* Parts which are not discribed in the TURN TABLE list are not serviceable.
If you need any other parts except those described, apply TURN TABLE assembly.

■ ELECTRICAL PARTS LIST

⚠ indicates parts for circuit safeguarding purposes. Therefore, when replacing, be sure to use specified parts only.

LOCATION No.	CODE No.	DESCRIPTION	SPECIFICATION	Q'TY	REMARK
	A1261-0001	ANT-LOOP	15.0UH ROUND	1	
	14509-470-030	ANT-FM/T	150+-5% OHM L=3500MM	1	
	14909-502-110	REMOCON-ASSY	SCM6500. S/S	1	
	12109-310-810	IC-REMOCON	LC7461-8103	1	
	12149-401-150	TRANSISTOR	KSD 471-Y. TAPE	1	
	14539-504-030	CERAMIC-RESONATOR	CSB455EBL	1	
	14929-421-010	DECK-CD(DRAW)	CMS-55/A	1	
WJR21	11058-377-229	R-FUSIBLE	RF 1/2T 2.2-J	1	⚠
WVR05	11249-004-020	VR-SEMI FIXED	VZ066HI. 1KB. HDK	1	
WVR01. 02. 03. 04	11249-102-044	VR-SEMI TAPE-H	DVN-DJA A03B24(20K)	4	
AC53	11609-103-222	C-ELECTROLYTIC	SRS 16V 2200M(12.5)	1	
XIC81	12109-303-150	IC-DAC	KDA0316LD BULK/TAPPING	1	

LOCATION No.	CODE No.	DESCRIPTION	SPECIFICATION	Q'TY	REMARK
UIC31	12109-310-420	IC-MICOM	UPD75308GF-A10-3B9	1	
WIC61. 62	12119-202-920	IC-BTL DRIVER	KA9257	2	
UIC51	12119-203-770	IC-DS PROCESSOR	KS5990/KS59910	1	
WIC21	12119-203-780	IC-SS PROCESSOR	KA8309	1	
WIC01	12119-203-790	IC-RF AMP	KA9201	1	
XIC82	12119-401-210	IC-OP AMP	NJM3403AD	1	
AIC51	12119-601-770	IC-REGULATOR	MC7805	1	⚠
WQ01	12149-202-050	TRANSISTOR	KSB564A-Y-	1	
XQ82L. 82R. UQ03 XQ81L. 81R	12149-301-900	TRANSISTOR	KSC 945-Y. TAPE	5	
WQ92	12159-301-330	TR-DIGITAL	KSR2003. TAPE	1	
UQ01. WQ21. 22.91	12159-301-780	TR DIGITAL	KSR 1003	4	
WQ23	12159-301-800	TR DIGITAL	KSR 1007	1	
UQ02	12159-301-810	TR DIGITAL	KSR2007	1	
XD81. UD01. 02 UD03, 04. 05, 06 UD07, 08	12169-301-400	DIODE-SWITCH	1N4148M ROHM(SMALL)	9	
LCD	12339-104-800	LCD-CD	MAX330 LE-0647AP	1	
XL02	12429-511-221	COIL-CHOKE	AX 220UH-03(BAL03ST221	1	
UK01. 02. 03. 04 UK05, 06, 07	13559-901-100	SWITCH-TACT	SKHVBE029A	7	
UB1	14049-033-420	FERRITE BEAD	INDVCTOR 3857S TAPE	1	
UX01	14534-504-040	CERAMIC-RESONATOR	CSA4. 00MG	1	
WXF51	14539-401-050	X-TAL	HC 18U 16. 9344 MHZ	1	
RR3	11048-477-109	R-METAL OXIDE	RS1T 1-J MINI TYPE	1	⚠
RR5	11048-477-391	R-METAL OXIDE	RS1T 390-J MINI TYP	1	⚠
RR2	11048-477-681	R-METAL OXIDE	RS1T 680-J MINI TYP	1	
RR11	11048-677-121	R-METAL OXIDE	RS 3T 120-J MINI TYPE	1	⚠
LSR1	11249-102-104	VR-SEMI TAPE-H	DVN-DJA A03B23(2K)	1	
RC4	11608-103-471	C-ELECTROLYTIC	SMS T 16V 470M(10X	1	
OTC1. FCT1	11829-512-030	C-TRIMMER	TZ03R 20PF	2	
BIC1. 2	12109-401-640	IC-ANALOG SWITCH	LC4066	2	
RIC1	12109-401-690	IC-REGULATOR	MC7812C/KIA7812P	1	⚠
JIC1	12109-401-840	IC-PRE/REC	TA8189N	1	
AIC1	12119-101-290	IC-POWER AMP	TA8207K	1	
IIC1	12119-101-370	IC IF+MPX	TA8132N	1	
CIC1	12119-101-830	IC-E/C VR	TC9153 AP	1	
KIC1. CIC2, QIC1	12119-401-630	IC-DUAL OPAMP	MC4558S	3	
RQ1	12139-201-100	TRANSISTOR	KSA 928A-Y	1	⚠
LQ6	12149-101-520	TRANSISTOR	KSA733-Y. TAPE	1	
ZQ4	12149-101-560	TRANSISTOR	KSA708 -Y. TAPE	1	
EQ1. 2. PQ1L. 1R QQ5. 6	12149-301-820	TRANSISTOR	KSC1222-L. TAPE	6	
IQ1	12149-301-860	TRANSISTOR	KSC838-0 . TAPE	1	
ZQ6. 7. JQ3L. 3R	12149-301-900	TRANSISTOR	KSC 945-Y. TAPE	4	
BQ7. 8. UQ3	12149-301-900	TRANSISTOR	KSC 945-Y. TAPE	3	
RQ5	12149-301-910	TRANSISTOR	KSC2331-Y. TAPE	1	
JQ1L. 1R. 2L. 2R	12149-301-930	TRANSISTOR	KSC1008-Y. TAPE	4	
LQ1. RQ4	12149-401-150	TRANSISTOR	KSD 471-Y. TAPE	2	
RQ3	12149-401-950	TRANSISTOR	KSD 882-Y	1	⚠
LQ2. 3	12159-301-330	TR-DIGITAL	KSR2003. TAPE	2	
JQ5L. 5R	12159-301-780	TR DIGITAL	KSR 1003	2	

LOCATION No.	CODE No.	DESCRIPTION	SPECIFICATION	Q'TY	REMARK
BQ3. 4. 5. 6	12159-301-800	TR DIGITAL	KSR 1007	4	
IQ4. FQ1. ZQ1	12159-301-810	TR DIGITAL	KSR2007	3	
RD1. 2. 3. 4	12169-201-080	DIODE-RECTIFIER	1N 4001. TAPE	4	⚠
UD16. 17. 18. 19 ID2. RD7	12169-301-290	DIODE-SW	1SS53/1N4148. CT:6PF	6	
CR8	12169-403-320	DIODE-ZENER	UZ 9. 1BM/RD9. 1E 0. 5W	1	⚠
ZZD1	12169-403-640	DIODE-ZN	400MW 6. 16-6. 40 UZ-6. 2BS	1	⚠
RZD2	12169-403-710	DIODE-ZN	500MW UZ-10BH	1	⚠
IZD1. RZD1	12169-404-110	DIODE-ZN	RD5. 6FB/UZP-5. 6B	2	⚠
FD1	12169-501-005	DIODE	KV 1236	1	
JL1R. 1L	12429-306-113	COIL-BIAS TRAP	FB895-85A	2	
LL2. RL1	12429-411-100	COIL-CHOKE	AX 10UH-02(LA02NA100K)	2	
IL1	12619-030-005	COIL-CAN	AC 450KHZ YEL	1	
OL1	12619-047-203	COIL-CAN	AD 110UH 796KHZ RED	1	
FL1	12619-411-000	MW ANT COIL	207BLRZ-K5026N-KR	1	
LL1	12619-573-071	COIL-CAN	AG 2. 2MH F NON BLK	1	
SPK	13303-500-623	TERMINAL-BOARD PUS	N 4P STICK	1	
AM ANT	13304-504-010	ANT TER. BOARD	A02-1064	1	
FEP	14519-815-010	FM FRONT END PACK	CEA9 735H	1	
ICF1	14529-301-750	FILTER-CERAMIC	SFE10. 7MS3G-A	1	OPTION
ICF2	14529-304-610	FILTER CERAMIC	AHCM2-450BL	1	
ICF3	14529-601-040	CERAMIC-FILTER	CDA 10. 7MG18-A	1	
ICF4	14539-504-050	CERAMIC-RESONATOR	CSB 456 F18	1	
	11609-105-222	C-ELECTROLYTIC	SMS 35V 2200M(16X3)	1	
RF1. 2	13164-101-913	CLIP-FUSE	PBP 3-1/2H T0. 3 SN	4	⚠
RSW1	13599-502-023	VOLTAGE SELECTOR	00120354 STICK	1	⚠ OPTION
ICF1	14529-301-760	FILTER-CERAMIC	SFE 10. 7 MA8H-A	1	OPTION
QVR1. 2. 3	11239-115-033	VR-EQ	RS20H123J304 53B/STICK	3	
QVR4	11239-115-043	VR-BAL	RS20H114J30453W/STICK	1	
UC5	11609-365-473	GOLD CAPACITOR	EEC-S5R5H473(5. 5V0	1	
UIC1	12109-401-350	IC-PLL U-COM	LC7230-8347	1	
UQ1. 2	12149-101-520	TRANSISTOR	KSA733-Y. TAPE	2	
CQ1. 2	12149-301-900	TRANSISTOR	KSC 945-Y. TAPE	2	
BQ3	12149-401-150	TRANSISTOR	KSD 471-Y. TAPE	1	
BQ1. 2	12159-301-800	TR DIGITAL	KSR 1007	2	
UD15	12169-201-080	DIODE-RECTIFIER	1N 4001. TAPE	1	⚠
CD2. 3. BD1. 2. 3. 4	12169-301-290	DIODE-SW	1SS53/1N4148. CT:6PF	6	
BZD1	12169-404-850	DIODE ZENER	500MW UZ-10BSA TAPING	1	⚠
URE1	12199-101-240	REMOCON-EYE	MM-001M(16M/M)	1	
BLD3. 4. 5. 6. 7	12309-117-520	LED-AMBER	SEL 3913K TP5 TAPPING	5	
LCD1	12339-104-650	LCD DTS	LE-0605CP	1	
EJK1	13339-101-514	JACK-MIC	HSJ1403-01-010(9010)	1	
AJK1-H/JACK	13339-101-590	JACK-HEADPHONE	SHQ9085-01-010(STI	1	
SW1	13519-201-280	SW-SLIDE	SSSU024N A011	1	
SW2	13529-203-930	SW-PUSH	SPEA122S C011	1	
TSW1-19	13559-901-100	SWITCH-TACT	SKHVBE029A	19	
UX1	14539-003-010	CRYSTAL-UNIT	HC18-U4. 5MHZ	1	
UD1. 2. 3. 5	12169-301-290	DIODE-SW	1SS53/1N4148. CT:6PF	4	
	13324-501-310	PLUG-CONVERSION	15A 300V(CP-EP)4. 0PI EXP	1	OPTION
OL2	12619-047-202	COIL-CAN	AD 510UH 220KHZ BRN	1	LW BAND
FL2	12619-566-913	TRAND-TEN, CAN	AF 2. 4MH FLW RED	1	LW BAND
OQ1, 2, 3, 4	12149-301-900	TRANSISTOR	KSC945-Y, TAPE	4	LW BAND
RC2	11609-402-140	C-ELECTROLYTIC	SM 35V 1000M(16X25)	1	

● GENERAL SECTION

1) AC 110V/220V UNIT

LOCATION No.	CODE No.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
P/T	12869-223-210	TRANS-POWER ; EI60 x 30 110/220V KS	1	⚠
V/SELECTOR	13599-502-023	VOLTAGE SELECTOR ; 00120354 STICK	1	⚠
POWER/CORD	13059-808-246	POWER CORD ASSY ; KKP-4 19C/B-161	1	⚠
FUSE (RF1)	14709-241-110	FUSE ; T 250V 0.315A 20EUR	1	⚠
FUSE (RF2)	14709-241-140	FUSE ; T 250V 0.5A 20 EUR	1	⚠

2) AC 120V UNIT

LOCATION No.	CODE No.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
P/T	12869-223-220	TRANS-POWER ; EI60 x 30 120V/UL	1	⚠
P/CORD	13059-808-301	POWER CORD ASSY ; KKP-8 WSPT-2 7FT 270M/M W/S	1	(OPTION) ⚠
P/CORD	13053-806-313	POWER CORD ASSY ; KKP-10 SPT-1 # 18 7FT 220M/M W/S	1	(OPTION) ⚠
FUSE (RF2)	14709-241-140	FUSE ; T 250V 0.5A 20 EUR	1	⚠

3) AC 230V UNIT

LOCATION No.	CODE No.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
P/T	12869-223-230	TRANS-POWER ; EI60 x 30 230V/EUR	1	⚠
P/CORD	13059-808-246	POWER CORD ASSY ; KKP-4 19C/B-161 W/S 220M/M	1	⚠
FUSE (RF1)	14709-241-110	FUSE ; T250V 0.315A 20 EUR	1	⚠

4) AC 240V UNIT

LOCATION No.	CODE No.	DESCRIPTION & SPECIFICATION	Q'TY	REMARK
P/T	12869-223-240	TRANS-POWER ; EI60 x 30 240V/BS	1	⚠
P/CORD	13059-808-330	POWER CORD ; KS-15/GTBS-2F (0.75) 1.63M BLK	1	⚠
FUSE (RF1)	14709-240-110	FUSE ; T 250V 0.315A 20 EUR	1	⚠

■ ABBREVIATION LIST

AC	:	Alternating Current
Addr	:	Address
ADJ.	:	Adjustment
AGC	:	Automatic Gain Control
ALC	:	Automatic Level Control
AM	:	Amplitude Modulation
AMP	:	Amplifier
AMPS	:	Automatic Music Program Search
ANT.	:	Antenna
ASSY	:	Assembly
BAL	:	Balance
BLK	:	Black
BLU	:	Blue
BPF	:	Band Pass Filter
BRKT	:	Bracket
CF	:	Ceramic Filter
ch, CH	:	channel
cm	:	centimeter
COM	:	Common
CON MIC	:	Condenser Microphone
D	:	Depth
D/A Convertor	:	Digital/Analog Convertor
dB	:	deciBel
DC	:	Direct Current
DEC	:	Decoder
DET	:	Detector
DEV	:	Deviation
DSP	:	Digital Signal Processor
DTS	:	Digital Tuning System
EA	:	Each
E-HEAD	:	Erase Head
EQ	:	Equalizer
FF or F-FWD	:	Fast Forward
F/F	:	Flip Flop
Fig.	:	Figure
FM	:	Frequency Modulation
FREQ.	:	Frequency
GND	:	Ground
GRN	:	Green
GRY	:	Gray
H	:	Height, High
Hz	:	Hertz
IC	:	Integrated Circuit
IF	:	Intermediate Frequency
IFT	:	Intermediate Frequency Transformer
I/O	:	Input/Output
KHz	:	Killohertz
Kg	:	Killogram
L	:	Left, Low
LCD	:	Liquid Crystal Display
LED	:	Light Emitting Diode
LPF	:	Low Pass Filter
LW	:	Long Wave
Max	:	Maximum
MHz	:	Megahertz
min	:	Minimum
MOD	:	Modulation
MPX	:	Multiplex
MW	:	Medium Wave
NF	:	Negative Feedback
OP AMP	:	Operational Amplifier
ORG	:	Orange
OSC	:	Oscillator
PB	:	PlayBack
PCB	:	Printed Circuit Board
PLL	:	Phase Lock Loop
P/T	:	Power Transformer
R	:	Right
RAM	:	Random Access Memory
REC	:	Record
REG	:	Regulator
REW	:	Rewind
RF	:	Radio Frequency
ROM	:	Read Only Memory
R/P	:	Record/Play
sec	:	Second
SSG	:	Standard Signal Generator
SSP	:	Servo Signal Processor
ST	:	Stereo
ST/EJT	:	Stop/Eject
SW	:	Switch, Short wave
TP	:	Test Point
TR	:	Transistor
TRANS	:	Transformer
V	:	Volt
VIO	:	Violet
VCO	:	Voltage Controlled Oscillator
VOL	:	Volume
Vpp	:	Voltage peak to peak
VR	:	Volume
Vref	:	Reference Voltage
V/SEL	:	Voltage Selector
VTVM	:	Vaccum Tube Volt Meter
VVC	:	Voltage Variable Capacitance
W	:	Watt, Weight
WHT	:	White
X	:	Crystal
YEL	:	Yellow